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Volume 20, Number 1, Spring 1990

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The Federation of Alberta Naturalists is composed of natural history clubs from across the province. The Federations' aims are:

(a) To encourage among all Albertans, by all means possible, an increase in their knowledge of natural history and understanding of ecological processes;
(b) To promote an increase in the exchange of information and views between natural history clubs and societies in Alberta;
(c) To foster and assist in the formation of additional natural history clubs and societies in Alberta;
(d) To promote the establishment of natural areas and nature reserves, to conserve and protect species, communities or other features of interest;
(e) To organize, or coordinate, symposia, conferences, field meetings, nature camps, research, and other activities whether of a similar or dissimilar nature;
(f) To provide the naturalists of Alberta with a forum in which questions relating to the conservation of the natural environment may be discussed so that united positions can be developed on them, and to provide the means of translating these positions into appropriate actions.

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Editor: Anna Robertson
R.R. 2, Lacombe, AB T0C 1S0
Telephone: 342-6889

Executive Assistant: Ann Stefura

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DEADLINES for F.A.N. project reports are:

Alberta Christmas Bird Counts, January 30, Andrew Slater, 152 Oakside Circle S.W., Calgary, AB T2V 4H2

May Species Count—Plants, July 15, J. Derek Johnson, Northern Forestry Centre, 5320 - 122 St., Edmonton, AB T6H 3S5; *—Birds and Mammals*, July 15, Don Stiles, 20 Lake Wapta Rise S.E., Calgary, AB T2J 2M9

Compiler cooperation is greatly appreciated.

PRESIDENT'S PAGE

Hello, I'm Don Stiles, your new president. Our previous president, Rob Gardner, has now entered the past-president role. He has done a good job in keeping F.A.N. going and I hope to continue this tradition.

One of the major items for our efforts in the coming two years will be the "Habitat Stewardship Program" where signs are put up by farmers and others, acknowledging their retention of habitat for wildlife. The Red Deer River Naturalists, and particularly Murray McKay, have done a good job over the past few years in getting this program started in their area. F.A.N. has put in a proposal to the World Wildlife Fund to hire a part time coordinator to expand this program province wide. Meanwhile, keep your eyes open for any habitat that is being kept. Actual conditions for recognition will be published when we get the program underway.

Meetings for this year are: May 11-13 at Stettler. Field Trip to Ducks Unlimited Project at Buffalo Lake. July - Lakeland, an area proposed for a new provincial park east of Lac La Biche. Our summer field trip (date to be set). Sept. 1,2 - Labor Day at Fort McMurray, a chance to visit where F.A.N. has not gone before, but where a new club is getting underway. Watch for detailed announcement in the A.N. and attend if you can.

ISSUES

Brief to the Review Board for the Environmental Impact Assessment for the Proposed Alberta-Pacific Pulp Mill near Athabasca, Alberta

Submitted by Rob Gardner for the Federation of Alberta Naturalists

Chairman and Board Members;

I personally thank the Review Board for this opportunity to discuss the future of our Boreal Forest. I regret that the citizens of Calgary have not received this same chance. The Federation, being a low-key organization, would have preferred a less confrontational forum but that has not been possible.

I will begin with a brief note about the Federation of Alberta Naturalists, then review a few historic examples which are relevant to this question. Next, I will mention some concerns we have with the Environmental Impact Assessment's Terms of Reference, then compare the project to the principles of the World Conservation Strategy.

Many of my comments today may seem directed more toward the government's actions than the Environmental Impact Assessment we are gathered to discuss. The Federation of Alberta Naturalists feels that the government shares the blame for this document's poor quality. The Alberta Forest Service seems to have given Alberta-Pacific the impression that any kind of proposal will be welcome. However, the citizens of Alberta are far more sensitive in this matter than their leaders.

Federation's Background

The Federation of Alberta Naturalists represents two thousand amateur naturalists from across Alberta. With interests ranging from moss identification to caving, our members have first-hand knowledge of most aspects of Alberta's natural history. We take pride in offering this wealth of experience to decision-makers in both industry and government. We want to help create a society which lives in harmony with our environment.

As a native Albertan, I have always taken comfort in knowing that the aspen and spruce forest stretches beyond the horizon. This inaccessible wilderness gives balance to the ploughed and paved landscape of southern Alberta. Though I have only visited it briefly, this vast area constantly reminds me, and many others, that nature still has a place in our world.

However, the Federation realizes that pleasant feelings will not put groceries on the table. We must not suppress the legitimate economic hopes of northerners, but we must remember that other Albertans also have an interest in this resource. The decision-making must involve these two groups, with their different, and potentially conflicting, objectives.

Historical Background

I would like to look at this proposal in a historical perspective. For example, in British Columbia, the same number of people are employed as thirty years ago, although the production has increased several fold. Old growth forest has virtually disappeared, replaced by pencil factories of second and even third growth. To the east, in the Great Lakes region, billions of dollars have been spent cleaning up chemical pollution. Each source may have been ''harmless'' in itself, but, together, they have poisoned the St. Lawrence River. We must learn from these mistakes, rather than rush into the same problems.

Now, looking closer to home, what of existing pulp mills in Alberta? They are used as bad examples by ALPAC itself. Any pollution of these rivers wastes a valuable resource. The present condition of the Wapiti River demonstrates what may result down-stream from a mill. Clearly, the government is unable to set and/or enforce adequate standards.

Alberta-Pacific itself does not have a great track record. Mitsubishi, one of the parent companies, is well-known for its involvement in ravaging the forest of Sarawak. They have evicted indigenous people as they clear the rainforest. This action clearly violates environmental and business ethics, and perhaps even the laws of Malaysia. Will our own native people be treated in the same way?

As far as the economic benefit to Albertans is concerned, our government's track record is equally dubious. The recent loan guarantees to Gainer's, with the resulting disruption in the pork industry, cast doubt on the Alberta's commitment to free enterprise. Now, we have our government subsidizing the clearing of our forests. Albertans deserve to know how their money is supporting this profitable multinational corporation. What are the economics of this operation?

Terms of Reference

The Federation of Alberta Naturalists regrets that the Terms of Reference for this review panel, and for the Environmental Impact Assessment itself, have been so restrictive. As you well know, every small increment of damage is not, in itself, ''significant''. However, when added together, the damage can be enormous. This project should be considered as a unit, with the pulp mill, forest operations, and associated infrastructure considered in total.

Generally, this would be adequate. However, the recent flurry of forestry project announcements means the cumulative effect of all the mills in the Slave River basin should be considered. The assumptions of upstream water quality can not be tested without this comprehensive look.

The Alberta Forest Service has claimed that the forestry operations will not cause any significant damage. If some should occur, then methods can be modified. Experience in the Peace River area suggests otherwise. The relatively minor logging has caused considerable erosion, flooding and siltation. Damage to farmland and fisheries has not been remedied to date.

We feel that this project, which requires clearing about one square kilometre of forest every day of the year for a hundred years, has at least a chance of causing an environmental impact. It deserves a full public hearing.

This company seems to believe that both the forest and the river are infinite resources which can never be consumed. The prairies which I call home once boasted of an ''infinite'' resource - the plains bison. Let's learn from our mistakes.

I'm sure the employment opportunities and economic benefits of the proposal have been promoted by previous speakers. But did they follow the guidelines of the Terms of Reference? Have you heard how many jobs will be created by the logging operations, and the economic spinoffs?

The billion dollar investment we hear so much about will not be spent in Athabasca or Lac La Biche. It will go to factories in Toronto, Cleveland, or wherever pulp mills are fabricated. Only a few jobs will be filled by local workers.

In short, if the economic benefits of the entire project are being considered, then it is only fair to look at the possible costs as well.

World Conservation Strategy

Many countries, including Canada, have endorsed the World Conservation Strategy as a practical means for environmentalists and developers to work together for their common good. We commend the Alberta government for initiating a provincial version of this document. We are surprised that such sweeping commitments of our landbase would be considered when this Strategy is so near completion.

The Conservation Strategy has three goals: to maintain natural ecological processes, to maintain genetic diversity, and to encourage sustainable development. Together, these goals can result in a strong economy supporting, and supported by, a vibrant environment. Unlike previous development strategies, this requires considerable thought and communication between user groups. Looking specifically at the question of ecological processed, these questions come to mind:

- Will sufficient time be allowed for logged areas to pass through all stages of vegetation succession?

- What techniques will be employed to ensure that the mixed woods so typical of the Boreal Forest will maintain their diversity?

- Fire has always been a part of this forest, and is not duplicated by logging. What provision is being made to accommodate this natural process?

- Native people depend on this mature forest. Have they been consulted so they can maintain their traditional livelihood or participate in a wage economy, as they prefer?

With regards to genetic diversity, the Federation is concerned about those species which depend on old-growth forest. Caribou, fur-bearers and some warblers are the most obvious examples, but many others exist. Our volunteers are mapping the breeding distribution of bird species to help understand habitat needs, but much more research must be done.

The concept of sustainable development is the starting point for most recent industrial proposals, but instead it should follow the other goals. In fact, if natural processes and genetic diversity are preserved, the development will almost automatically be sustainable.

The term "sustainable development" can be defined in many ways. The Brundtland Commission stated "that it meets the needs of the present without compromising the ability of future generations to meet their own needs." (Our Common Future, p. 8). The degree to which our landscape is changed from how we found it is the measure of our failure to meet this challenge.

The Federation considers the dumping of a tonne of chlorinated hydrocabons each day into the Athabasca River to be a major failure. If this effluent is so clean, why isn't it recycled through the mill again? We are told it is clean enough for fish, whooping cranes and native people to drink, but too dirty to mix with mashed trees. Where are the priorities of this company?

Economic Environment

The Federation strongly endorses the diversification of Alberta's economy. A broadly based mix of agriculture, energy and industry will even out the booms and busts which have caused social problems recently. But this proposal does not seem to result from a careful plan to improve our economy. Commitments on this scale must be measured against the lost opportunities which could have been obtained with this money or forest.

Indeed, our government seems totally opposed to the concept of "planning". The Federation of Alberta Naturalists has spent more time planning the management of a tiny natural area than the entire government has invested in the future of northern Alberta. We have been given no hint as to what the north will look like in twenty or fifty years. How many people can live there? What towns will likely grow into cities, and how fast?

Perhaps indirectly, this proposal gives the answer. If the mill goes ahead, the forest in this area will be fully committed. There will be little, if any, future development. Certainly, tourism, recreation and fishing will shrink instead of growing. The number of forestry jobs will also decrease steadily as automation increases and the fibre reserves decline.

Throughout this debate, Albertans have assumed that the proposed pulp mill will be profitable. This may be naive on our part. The rules of the market economy have been distorted by government grants and loan guarantees. As the partial underwriter, I would like to see the business plan for the mill.

Many questions arise when the profitability is examined. How does the company plan to adapt to the European Economic Community's coming ban on kraft paper products? What if the kraft pulp market collapses in the future? Will we be left holding the bag? Why hasn't the province received some equity in the mill in exchange for its backing? Why are the royalties so low in relation to the value of the pulp?

These are not private matters between company management and their shareholders. The communities of northeastern Alberta need to know how stable their economy will be. Does the company plan a wide variation in production, or even a busy but short life for the mill?

Conclusion

We support the orderly, sustainable development of the North, by the people of the North. We strongly oppose this proposal because:

- it does not result from a well thought out regional plan, as part of a provincial conservation strategy.
- the EIA demonstrates no understanding of the cumulative effects on river of all the pulp mills.
- large quantities of chlorinated hydrocabons will be dumped into the river.
- the enormous scale precludes sensitive treatment of the environment.
- the EIA does not include the forestry operations.
- the large commitment of public resources and money will result in little local economic benefit.

The Federation of Alberta Naturalists hopes the company will take these comments into consideration when revising their proposal. We look forward to reviewing a further draft of the Environmental Impact Assessment which recognizes all the values of our Boreal Forest, and treats this valuable ecosystem with respect.

Editor's Note: Due to an oversight, no credit was attached to the May Species Count (Birds) reports that appeared in AN 19(2):52-62. Acknowledgement should have been given to Robyn Shortt for preparation of the tables.

RESULTS OF THE 1989 MAY SPECIES COUNT--PLANTS IN FLOWER

J. Derek Johnson

Following are the results of the botanical portion of the 1989 May Species Count, held May 27-28. Scientific nomenclature follows Moss and Packer (1983); common names have been taken from Looman and Best (1979). The areas from which reports have been received have been listed in approximate latitudinal order from south to north.

The 1989 count will be remembered for many reasons. The number of participants (126) and reports (40) set all time highs, breaking the records set just last year of 100 and 31, respectively. The 43 participants in the Edmonton region alone is more than have turned out in the entire province in three years of the count's history. Reports covered 17 areas, the same as in 1988, but the coverage was more widespread, including a couple of areas never before surveyed on the May Count. A first time ever count in Waterton Lakes National Park proved to be especially interesting. Coverage of the southern prairie areas was probably the best it has ever been. The 305 species reported in flower is the fourth highest total in the history of the count. Edmonton led all count areas reporting 123 species in flower. Whiskey Gap was second with 102 species. The special nature of the Whiskey Gap area is evident when you consider that it took 43 people in the Edmonton region, covering 16 different areas over four days, to amass 123 species, whereas six people in one day came up with the 102 species at Whiskey Gap. The Banff/ Canmore count came second as far as individual counts go, a mere 35 species behind Whiskey Gap!

The large number of participants and the diversity of areas covered compensated for the lateness of the spring and resulted in the relatively high number of species reported in flower. 1989 had the second latest spring since regular counts began in 1976. Only 1979 had a later spring. Spring was 7-10 days late over most of the reporting areas. Many observers thought that it was much later than this, but this is only because they were comparing it to the exceptionally early spring of 1988 when conditions in the extreme south of the province were up to three weeks ahead of average and all areas were at least one week early. Because of the lateness of the spring, totals of plants in flower in most areas were well below the record or near record levels of 1988, in some cases by over one half. Medicine Hat and Elk Island National Park were the only areas to report a marginal increase in the number of species seen in flower. This was primarily a result of increased participation and better area coverage.

Unfortunately, the weather in some areas did not cooperate to make it a pleasant count weekend. Wet snow fell in many areas south of Calgary making it difficult to find flowers by the end of Saturday. Amounts reported ranged from 10 cm in the Cypress Hills to 25 cm in some areas in the mountains. Rain was reported from Banff, Calgary, and Medicine Hat. Conditions in the central part of the province from Red Deer to north of Edmonton were better. Saturday was generally cool and cloudy in the morning, but conditions improved as the day went on. Sunday was generally a nice day over most of the northern part of the province, although it was a bit cool in many areas.

An attempt was made this year to come up with a more refined rating for flowering than the rare, occasional, common, or abundant that has been used on the Check List of Spring-flowering Plants in Alberta (Hrapko 1988) in the past. A four point system was tried this year: 1=1 or 2 plants in flower; 2=up to 25% in flower; 3=25-50% in flower; and 4=50-100% in flower. For the most part this system seemed to work reasonably well for those who tried using it and it did help me when doing my comparisons with 1988. However, it did appear that a few people misinterpreted the system. What should be noted is how many plants are in flower, not how many plants have flowered. I had great difficulty accepting reports that more than 50% of the crocuses or buffaloberries seen were in flower. I thank those who tried this system this year, and for those who did not, I would encourage them to give it a shot next year. I do think that it will add value to the May Count results over the long run.

The 1989 count proved to be especially challenging for me when it came to trying to identify some of the specimens submitted for identification. Because of the lateness of the spring, many species were just beginning to flower, and many of the specimens sent to me, particularly the sedges, willows, and mustards, were very immature to say the least. Many of the mustards require reasonably mature fruits to be certain of the identification. Many of the specimens sent to me this year barely had flowers! There are probably more unidentified species in the count this year than there has been for a number of years.

Some observations from the 1989 count are worthy of special mention. 1988 was an unusually poor year for violets, but 1989 was just the reverse. Nine species were recorded in flower across the province, a record high, and this total included one new species. Several observers commented that the flowering of *Viola* adunca (Early Blue Violet) seemed to be particularly prolific this year. The annuals also seemed to be doing better this year. Androsace septentrionalis (Pygmyflower) was reported in flower from 12 areas, a higher than usual number. Collinsia parviflora (Blue-eyed Mary), infrequently reported on the May Count at the best of times, showed up on four counts this year, including a somewhat unexpected report from Writing-on-Stone Provincial Park. A number of observers in the southern part of the province commented on the conspicuousness of Penstemon nitidus (Smooth Blue Beardtongue) this year. It showed up, with high percentage flowering, on all counts from Waterton north to Calgary. The lateness of the spring reduced the number of grass species observed in flower to a mere fraction of the record numbers observed in 1988, but on the other hand, the 14 willow species reported in flower represented an all-time high for the group. The Edmonton region alone reported 10 species.

Considering the lateness of the spring I would not have expected many additions to the all-time May Species Count list, so the 10 new species recorded this year came as a bit of a surprise. Five of the new species came from the Waterton Lakes count; Whiskey Gap, Medicine Hat, Red Deer, Edmonton, and McLennan added one species each. Two of the additions also represent new families for the count (Berberidaceae and Gentianaceae). The new species are: Erythronium grandiflorum (Glacier Lily), Anemone lithophila (Drummond's Anemone), Berberis repens (Creeping Mahonia), Viola orbiculata (Round-leaved Wood Violet), and Osmorhiza occidentalis (Western Sweet Cicely) from Waterton; Ribes viscosissimum (Sticky Currant) from Whiskey Gap; Penstemon gracilis (Lilac-flowered Beardtongue) from Medicine Hat; Gentiana aquatica (Moss

Yellow-bell *(Fritillaria pudica)*

American Winter Cress *(Barbarea orthoceras)* (Photos: J. D. Johnson)

Gentian) from Red Deer; *Galium spurium* (False Cleavers) from Edmonton; and *Carex tenuiflora* (Thin-flowered Sedge) from McLennan. The currant, gentian, and cleavers reports were supported by specimens.

All of the new species reported from the Waterton count are species of the mountainous areas of southwestern Alberta, with Creeping Mahonia and Western Sweet Cicely having the most restricted distributions, occurring no further north than the Oldman River area (Moss and Packer 1983). Sticky Currant has an equally restricted distribution in the southwestern corner of the province, and it is a species included in the rare vascular plants list for Alberta (Packer and Bradley 1984). Lilac-flowered Beardtongue has a relatively widespread distribution in dry, often sandy, open areas throughout the southern part of the province up into the Peace River area. Considering its distribution and flowering period, it is mildly surprising that it has not been encountered previously on the May Count. *Gentiana aquatica* presents a rather interesting case. A number of authorities lump this species together with *G. prostrata*, but I find it more reasonable to follow the treatment used by Scoggan (1979), who recognizes them as distinct species. The two are readily separable, both by appearance and habitat. The former is a smaller plant, up to 10 cm tall, with nonrecurved, white-margined leaves, flowers up to 10 mm long, and a short-stalked ovary. The latter species is up to 25 cm tall, with recurved, green-margined leaves, flowers about 12 mm long, and a prominently-stalked ovary. The former is a species of moist soil in meadows, around sloughs, and in marshes, whereas the latter is a species of turfy meadows and slopes at higher elevations (Scoggan 1979). The Flora of Alberta (Moss and Packer 1983) does not recognize *G. aquatica*, but Scoggan (1979) cites reports from southwestern Alberta as far north as Banff, and from Mortlach, Saskatchewan. There are also apparently records from the Hand Hills (J. Posey pers. comm.) and Wainwright (C. Wallis pers. comm.). The present record from Red Deer is therefore of particular interest. False Cleavers is a relatively uncommon weed in the settled areas of the province. Thin-flowered Sedge is a species of scattered occurrence in the boreal forest of Alberta. It is often a characteristic, if not abundant, species in mesotrophic fens.

A taxonomic problem pointed out to me a few years ago by Elizabeth Hall should be commented on regarding the 1989 count. The first edition of the Flora of Alberta (Moss 1959) recognized only one species of Low Townsendia, *Townsendia sericea* (synonym *T. exscapa*). However, the second edition of the flora (Moss and Packer 1983), which I follow when compiling the count results, recognizes two species, *T. exscapa* and *T. hookeri*. Most observers have simply transferred what they used to call *T. sericea* into *T. exscapa*. In many cases this is not correct. A survey of specimens in the Northern Forestry Centre herbarium revealed six of seven collections held there to be *T. hookeri*, not *T. exscapa*. *Townsendia hookeri* is similar to *T. exscapa*, but is a noticeably smaller plant in terms of both the size of the individual flowers and the flowering head. My own personal experience in the Calgary, Banff, and Lethbridge areas would lead me to believe that the species being reported on the May Count is *T. hookeri* (Hooker's Low Townsendia), not *T. exscapa* (Low Townsendia), according to the second edition of the Flora of Alberta (Moss and Packer 1983). I have altered the results of this year's count to reflect this. However, I would both caution and encourage observers to look carefully at the plants they are seeing; it is entirely possible that both species could be present in a given area.

Another recurring taxonomic problem involves two species of dandelion, *Taraxacum ceratophorum* and *T. officinale*. According to the Flora of Alberta (Moss and Packer 1983), *T. ceratophorum* is a species of the mountains and far north. The Flora of Canada (Scoggan 1979) and A Flora of Waterton Lakes National Park (Kuijt 1982) treat it in a similar manner. However, both Budd's Flora of the Canadian Prairie Provinces (Looman and Best 1979) and Vascular Plants of Continental Northwest Territories, Canada (Porsild and Cody 1980) consider it to be a widespread species of open ground. Does that tell you that the taxonomy of the dandelions is a bit confused? I have always followed the Flora of Alberta (Moss and Packer 1983) when compiling the May Count results, and for that reason alone I have lumped all reports of *T. ceratophorum*, except those from the mountains, in with *T. officinale* for reporting purposes.

Following is a list of observers, totals (1988 in brackets), and other pertinent remarks for each area.

1. **Waterton Lakes National Park:** Two separate counts have been summarized in the Waterton results. Janice Smith did a count accumulating 27 species before the snow began to fall on May 27. Hazel Ross listed 30 species in flower on a count done on June 4. The combined total for the area was 45 species. In addition to the new species, an interesting flowering record was that of *Streptopus amplexifolius* (Clasping-leaved Twisted Stalk), last reported from Edmonton on the 1980 count. An early flowering record was that of *Castilleja miniata* (Red Indian Paintbrush).

2. **Whiskey Gap/Cardston:** The 102 (154) species reported in flower from Whiskey Gap by Barbara and Lynn Sommerfeldt, Ruthann and Leroy Scotter, and Etta and George Scotter represents an impressive single count total considering the general lateness of the spring and poor weather conditions in the area on the weekend. In addition to Sticky Currant, a new flowering record for the area was that of *Polygonum bistortoides* (Western Bistort). Previous reports of this species in flower have all come from the Cypress Hills. A count by Shirley Sillito in the Cardston area included 21 species in flower.

3. **Writing-on-Stone Provincial Park:** A thorough survey of this provincial park along the Milk River in southern Alberta resulted in a list of 64 species in flower submitted by Jane Lancaster. The most interesting record was that of *Silene menziesii* (Menzie's Catchfly), first reported on the May Count last year from Head-Smashed-In Buffalo Jump.

4. **Cypress Hills Provincial Park:** Margaret and Anton Walker, and Doug, Sue, and Ina Macdonald conducted the seventh count in this area encountering 62 (79) species in flower. Margaret also sent along a list of 18 species in flower compiled by Kelty Otto, a park naturalist, along some of the hiking trails in the park. An interesting report was that of *Barbarea orthoceras* (American Winter Cress), first reported on the May Count last year from Yamnuska.

5. **Lethbridge:** After missing last year, two counts were done in the general Lethbridge area. R.G.H. Hall observed 18 species and Hazel Ross observed 29 species in flower which, when combined, resulted in a total of 36 species for the area. This is the second lowest total in 10 years of records. A notable early flowering record for the year was that of *Gaillardia aristata* (Brown-eyed Susan).

6. **Medicine Hat:** The "birders" were not separated from the "planters" in the Medicine Hat report, so a group of 29 participants is given credit for observing 42 (38) species in flower. Participants included Janet Adams, Dennis Baresco, Grant Bray, Linda Canham, Kevin and Ann Corcoran, Eileen and Ted Cowtan, Bob Frew, Rob and Corlaine Gardner, Lex Karne, Valerie Martins, Peter Mehrer, Cynthia and Cathlin Mutch, Garry Newton, Mr. and Mrs. J. Newton, Mark Oxamitny, Michael O'Shea, Paul Strickland, David Tate, Bill and Ruth Tidy, Ben and Michael Velner, and Mark and Dan Schiebelbein. In addition to the new species for the count, two interesting flowering records were those of *Lupinus pusillus* (Small Lupine) and *Orobanche fasciculata* (Clustered Broom-rape). Small Lupine has technically never been reported in flower on the May Count before, but it is included in the Check List of Spring-flowering Plants in Alberta (Hrapko 1988). The only previous report of Clustered Broom-rape in flower on the May Count came from Lethbridge in

Silky Scorpionweed (*Phacelia sericea*)

Glacier Lily (*Erythronium grandiflorum*)
(Photos: J. D. Johnson)

1976. Early flowering records for the year included *Rosa arkansana* (Low Prairie Rose) and Brown-eyed Susan.

7. Dinosaur Provincial Park: Beth Cornish submitted a list including 35 species in flower. Interesting records included Small Lupine and *Plantago elongata* (Linear-leaved Plantain). Linear-leaved Plantain was last reported in flower from Dry Island Buffalo Jump Provincial Park in 1986. A notable early flowering record was that of *Achillea millefolium* (Common Yarrow).

8. **Calgary:** Three people submitted reports covering six areas in the Calgary region. Gordon Kerr encountered 20 species in flower in Confederation Park on Saturday and 27 species in flower at Wyndham Provincial Park near Carseland on Sunday. Ena Spalding reported 32 species from Lowery Gardens and 15 species from Springbank, west of the city. On May 30, Don Stiles listed 14 species in flower on a hillside in northwest Calgary and 30 (36) species from the Bow River below Queensland. Incidental observations by the author and Patricia Higgins in Bowmont, Glenmore, and Fish Creek parks on May 20 upped the total for the Calgary area to 63 (95) species. An early flowering record, considering the season, was that of *Galium boreale* (Northern Bedstraw).

9. **Yamnuska:** The usual good turnout was achieved by the Banff group for both of their counts. The seven participants on the Yamnuska count, Vicki Connoy, Jean Greig, Tincka Hipkins, Diane and Mike McIvor, and Bob and Mary Smith observed 54 (117) species in flower. This is only three species above the area's record low total of 51 set in 1982.

10. **Banff/Canmore:** Twelve participants came out for this count. Joyce and Keith Cole, Moragh Dornian, Jean Greig, Alan and Tincka Hipkins, Diane and Mike McIvor, Bob and Mary Smith, and Eva and Kate Zidek encountered 67 (101) species in flower. An unusually late flowering record on both the Yamnuska and Banff counts was that of *Populus balsamifera* (Balsam Poplar).

11 **Red Deer:** Helen Harris submitted a summary report including her observations and those of Beth and Albert Peck. She listed 35 (67) species in flower, the third lowest total in 11 years of surveys. In addition to Moss Gentian, a record of interest was that of *Viola pedatifida* (Crowfoot Violet). A species on the rare vascular plants list for Alberta (Packer and Bradley 1984), Helen commented that she saw about 50 plants during the course of her count!

12. **Buffalo Lake:** C.D. Bird, on a solo effort, listed 35 (79) species in flower. This is the lowest total ever for the area, but other duties precluded enough time for a more thorough search.

13. **Edmonton:** Thanks to the promotional efforts of the Alberta Native Plant Council, Edmonton far exceeded all previous records for the area in terms of the number of participants and reports received. A total of 43 participants submitted 16 reports covering different areas within an 80 km radius of the city. This is 28 participants and 6 reports more than ever before. The 123 (174) species reported in flower is above the long-term average. Record-setting counts over the past three years have pushed the 13-year average for the area to 96, moving it past Yamnuska into second place behind the upstart Whiskey Gap count.

As far as counts within the city go, Elisabeth Beaubien and Derek Johnson encountered 46 (82) species along Whitemud Creek between 23rd and 45th Avenues; Diana Baragar listed 18 species from Mill Creek Ravine S of 75th Ave.; Robin Bovey and Elizabeth John observed 22 species along the northern section of Mill Creek Ravine; Sheila Macfie and Maria Zbigniewicz recorded 22 species in Kinsmen Park; Patsy Cotterill summarized observations from May 26-29 at Patricia Ravine, Fort Edmonton, woods N of the Whitemud Freeway in west Edmonton, the University of Alberta campus, Mackinnon Ravine, Rio Terrace, and Laurier Park in a list containing 60 (64) species; and 21 species were recorded on Patsy Cotterill's visit to Little Mountain Urban Natural Area in north Edmonton. Anne Robinson and Kevin Timoney reported 18 species from their acreage on the Cooking Lake moraine E of Edmonton. Elisabeth Beaubien, Bonny and Judy Fairweather, Eric, Geoffrey, and Linda Kershaw, and Clara and Walter Moser saw 31 (46) species in the general Hastings Lake area. Patsy Cotterill, Deirdre and Graham Griffiths, and Carol Smith listed 24 species from the Astotin Natural Area. Pat Clayton, Deirdre Griffiths, and Jim Lange visited the Wood Bison Trail in Elk Island National Park, encountering 24 species in the process; Bob, Diane, Lynne, and Nancy Reckhow added five species from Tawayik Lake. Sue Fast, Will Husby, Sandra Opdenkamp, and Renata Osterwoldt included five species from Beaverhill Lake. Valerie Lidford, and Chevay, Clea, and K. Roddick reported 14 species from Natural Area 214 E of Clyde. Jim and Margaret Flatman recorded seven species at the Clifford E. Lee Nature Sanctuary. Diana Baragar, B. Busrin, P. Cotterill, A. Hendry, B. and K. Schmidt, and J. and F. Sproule travelled to the Wagner Natural Area accumulating a list of 47 (83) species. Charlotte Smith and 36 members of the George Pegg Botanic Garden Society covered the Pegg property N of Glenevis on the third May Count survey done in this area. Their list included 40 species.

I am relieved that all this additional participation occurred in a year with a late spring. If it had occurred last year during the exceptionally early spring of 1988, I am not sure I could have handled the massive species lists that I would have received. In addition to the new species for the count, an interesting record was that of _Viola selkirkii_ (Great-spurred Violet) from Glenevis. This is another of the violet species on the rare vascular plants list for Alberta (Packer and Bradley 1984), with the Glenevis area being one of the first from which it was recorded. Early flowering records for the Edmonton area included _Calla palustris_ (Water Calla) and _Maianthemum canadense_ (Wild Lily-of-the-Valley).

14. **Entwistle:** The annual count in this area revealed 44 (74) species in flower. This is the second lowest total recorded in the 11-year history of this count, exceeded only by the 27 species observed in flower in the late spring of 1979. Derek Johnson, Steve Zoltai, and Barry LeVoir were the observers. _Corallorhiza trifida_ (Early Coralroot) was found in flower this year after a five year absence from the count.

15. **Grande Prairie:** A count done on May 20 by Ellen and Gavin Craig included 22 (62) species in flower. More species would have been seen in flower if the count could have been done on the designated weekend. The fact that the count was done a week early makes it even more surprising, therefore, that species such as _Linnaea borealis_ (Twinflower), _Rosa woodsii_ (Wood's Rose), and _Viburnum opulus_ (High-bush Cranberry) were listed as being in flower.

16. **McLennan:** On May 29, Derek Johnson, Bruce Robson, and John Underwood encountered 23 species in flower at Winagami Lake Provincial Park, SE of McLennan. On May 30-31, in an area approximately 10 km N of Kimiwan Lake, these three observers, along with Graham Hillman, accumulated a list of 54 species in flower. The combined count for the area was 61 species. In addition to the new species for the count, an interesting record was that of _Stellaria calycantha_ (Northern Chickweed), first reported on the 1987 count from Banff and Edmonton.

17. **Fort McMurray:** Cathy Commerud, Pat Connolly, Marion Horrocks, Phyllis Papineau, Doris Thesenutz, Jim Wallbridge, Karen Welk, and Gretchen Wetham reported 59 (78) species in flower, a respectable number considering the lateness of the season, but still well below the long-term average for the area of 74.

A complete listing of count results is available on request from the Curator of Botany, Provincial Museum of Alberta, 12845 - 102 Ave., Edmonton, Alberta T5M 0M6. The 1990 count, the fifteenth annual since 1976, will be held on the weekend of May 26-27.

Acknowledgements

The promotional effort for the 1989 count by the Education and Information Committee of the Alberta Native Plant Council is gratefully acknowledged. Particular thanks go to Elisabeth Beaubien and Patsy Cotterill for their diligent efforts in promoting the count.

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Corrections to the 1985 and 1987 May Species Counts--Plants in Flower

J. Derek Johnson

Over the course of the years I have accumulated a number of specimens submitted in support of species reported in flower on the May Count. This past spring I decided that it was about time I did more than just trust my own identification abilities and send some of these specimens off to Ottawa for verification. Three revisions were made to the submitted specimens. A specimen of Lomatium macrocarpum (Long-fruited Parsley), collected from Lethbridge in 1985, was revised to Cymopterus acaulis (Plains Cymopterus). This change does not alter the total number of species reported from Lethbridge for the year (84), but does increase the provincial total to 291, and adds Plains Cymopterus as a new species to the all-time May Count list. The other two changes were to specimens from the Whiskey Gap count in 1987. A specimen of Poa nervosa (Wheeler's Blue Grass) was revised to P. pratensis (Kentucky Blue Grass) by S.J. Darbyshire. Poa nervosa should therefore be removed from the 1987 species listing. A specimen of Carex douglasii (Douglas Sedge) was revised to C. praegracilis (Graceful Sedge) by P.M. Catling. (Another specimen of C. douglasii was verified as correct by Catling.) Carex praegracilis should therefore be added to the 1987 species listing. These changes add one species to the record-setting count at Whiskey Gap, upping the total to 163 species, but do not change the total for the province as a whole, which remains at 383 species.

Additions to the 1988 May Species Count--Plants in Flower

J. Derek Johnson

Don Stiles submitted two very late reports from the botanical portion of the 1988 May Species Count, increasing the record-setting total for the year to 31. While not adding any species to the total for the year (437), they do require that additions be made to the counts from Calgary and Edmonton. The report from the Bow River area below Queensland includes 36 species in flower, five of which should be added to the Calgary list for the year. These are (in taxonomic order): *Rubus idaeus* (Wild Red Raspberry), *Astragalus pectinatus* (Narrow-leaved Milk-vetch), *Medicago sativa* (Alfalfa), *Linaria vulgaris* (Butter-and-Eggs), and *Lonicera dioica* (Twining Honeysuckle). This raises the number of species seen in the Calgary area in 1988 to 95 and the number of participants to seven. The report from Edmonton, covering the north-facing slope of the North Saskatchewan River below the University of Alberta, includes 24 species and adds *Aquilegia brevistyla* (Small-flowered Columbine) to the Edmonton list for the year. This increases Edmonton's all-time record number of species to 174. Graeme Greenlee accompanied Don on this count, increasing the number of participants in the Edmonton area to 15 and the total for the province as a whole to an even 100.

Author's Address:
Northern Forestry Centre, 5320 - 122 Street,
Edmonton, Alberta T6H 3S5.

Lethbridge Naturalist Society

Graeme Greenlee

The winter program schedule got underway with the annual picnic in September, held this year in Popson Park, in southwest Lethbridge. Following a potluck supper, a short hike was held along the bank of the Oldman River.

October was the annual meeting, where the new executive took office. It was also members night, where members are invited to show a few of their own slides to other members.

In November, Frank De Boon, former ranger in Writing-On-Stone Provincial Park and now with B.C. Fish and Wildlife at Fernie, gave a side talk on wildlife and nature photography.

The December program consisted of the annual Lethbridge, Cardston, Claresholm and Waterton Park Christmas Bird Counts.

In January, Charles Zinkan, Superintendent of the Waterton Lakes National Park gave a slide talk on Kluane National Park in the Yukon. He also answered a few questions pertaining to the Waterton Lakes National Park management plant.

In February, one of our own members, Dr. Alan Roberts gave a slide talk on Our Lethbridge Coulee Environment, Past, Present and Future.

The March Program featured Ron Beck of the Lethbridge Community College, speaking on Belize natural history.

In April we again have one of our own members, Colin Weir, speaking on the Reintroduction of the Burrowing Owl and Rehabilitation of Other Species.

Regular indoor meetings are held on the second Friday of the month from October through April, December excluded, 7:30 p.m. in room 1028-Cousins Building, Lethbridge Community College, 3000-College Drive South, Lethbridge, Alberta. The April meeting this year will be the third Friday (April 20).

Field trips are held from May through August, and plans are currently in progress for this summer's trips.

We regret to note that there is no one representing the Lethbridge Naturalists Society on the F.A.N. board.

Population Fluctuations and Spatial Relationships Among Wolves, Coyotes and Red Foxes in Jasper National Park

Dick Dekker

Abstract

Coyote sightings in the Athabasca River Valley increased from 0.13/day in 1980 to 0.91/day in 1984, and decreased to 0.07/day in 1988, coinciding with a fluctuation in the local wolf population. Observations of coyotes and red foxes suggested strong spatial segregation, with coyotes predominant in prey-rich valley bottoms and foxes common only on mountainsides. It is hypothesized that foxes were unable to utilize valley bottoms because of coyote presence. After 1987, foxes increased and were seen for the first time in valley bottoms, while coyotes became less common and were mainly observed along the highway and railroad.

Introduction

Prior to the arrival of Europeans in present-day Jasper National Park (JNP) in the early 1800s, the only canids were probably Wolves *(Canis lupus)* and Red Foxes *(Vulpes vulpes)*. I found no Coyotes *(Canis latrans)* mentioned in Hudson's Bay Company Post journals and fur records from western Alberta, 1800-1850. To my knowledge, the earliest records for the species from JNP are from 1895, as cited in Soper (1970). According to Banfield (1974) coyotes expanded their range in North America during the 1800s and 1900s to the north and east. I believe that this range expansion followed local extirpation or scarcity of wolves, and it is possible that coyotes did not spread into the JNP region until the late 1800s when wolves and their ungulate prey species were very scarce due mainly to over-hunting (Stelfox 1971).

In the 1900s, wolf populations have fluctuated greatly in JNP in response to control measures and fluctuations in hoofed mammals (Carbyn 1974, Dekker 1985b). Coyotes are considered abundant especially in montane valley bottoms (Holroyd and Van Tighem 1983). Although red foxes were numerous in 1914 on river flats near the north boundary of JNP (Soper 1970), local trappers Al Johnson and Bert Hanson find them now extremely scarce (personal

Wolves (Photo: Monty Sloan)

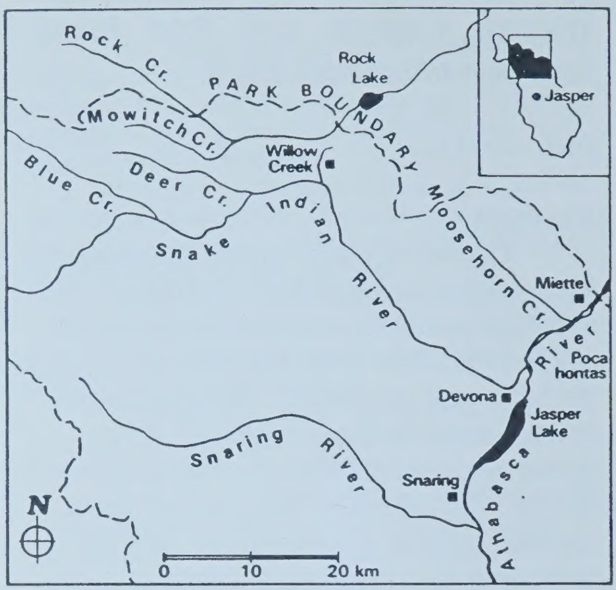
communication). In 22 years of hiking I found no evidence of foxes at Willow Creek in northern JNP where wardens saw the species only at high elevations. Based on Warden Office files, Holroyd and Van Tighem (1983: 333-334) conclude that red foxes are "very rare in JNP... and little is known about the life history of the species in boreal and mountain regions."

This paper reports sightings of red foxes and coyotes in the lower Athabasca Valley in JNP during a period of fluctuating wolf numbers, 1980-1989.

Study Area and Methods

The study area was roughly 20 km² at a base elevation of 1004 m in the Devona District of the Athabasca River Valley of JNP (53° 09'N 118° 00'W)(Figure 1). The river valley bottom is 2-2.5 km wide, quite flat and flanked by abruptly rising mountain ranges that are forested below the 2100 m level with White Spruce (*Picea glauca*) and Lodgepole Pine (*Pinus contorta*). Trembling Aspen (*Populus tremoloides*) and Willow (*Salix spp.*) occur at lower elevations. The valley bottom contains montane meadows, and the lower mountain sides feature semi-open grasslands that allow good opportunities for viewing wildlife. The study area is a major wintering ground for Wapiti (*Cervus elaphus*) and Bighorn Sheep (*Ovis canadensis*). Mule Deer (*Odicoileus hemionus*). White-tailed Deer (*Odicoileus virginianus*), and Moose (*Alces alces*) are common. From 1973 to 1982, and again from 1984 to 1989, a wolf pack of 8-14 animals used the area as a year-round hunting ground (Dekker 1985a, 1986). The climate of the area is continental with long, cold winters and heavy snowfall, but accumulations at Devona are usually light due to the moderating influence of chinook winds. Holroyd and Van Tighem (1983) provide a detailed description of the area's climate, vegetation and fauna.

Figure 1. Location of Devona study area in Jasper National Park



I visited the study area 3-13 times yearly between 1 October and 31 March, 1980-1989. Field trips varied from two to five days, but the first and last days of each visit were considered as half observation days, since I arrived in the valley between 1100 and 1400 h, and I would depart on the last day of the visit in early afternoon. Thus, a three-day visit accounted for two full observation days. During each visit, I used the same trails and hiked over the same ground. Sightings of coyotes, foxes and other animals were recorded in note books. Tracks of red foxes, positively identified by narrow heel pad and other characteristics (Murie 1954, Dekker 1985c), were counted conservatively, assuming that several sets of similarly-sized tracks at one location were made by the same fox.

Results and Discussion

Of 55 coyotes sighted, 45 were single and 10 were in pairs. All coyotes appeared well-furred and there was no evidence of disease. Numbers of coyotes per day increased from 0.13 in 1980 to 0.61 in 1983 and 0.91 in 1984, and decreased again to a low of 0.07 in 1988 (Table 1).

Red foxes were seen on 24 occasions. All except four of the fox sightings were on or near the slopes. By contrast, 82% of coyote sightings were on valley bottoms (Table 2). The recorded sightings show a significant difference ($P<0.001$ Chi-square) in location between foxes and coyotes.

Fox tracks were found whenever snow conditions were suitable along the mountainsides at Devona and adjacent slopes between Snaring and Miette cabin. From 1980 to 1987, 106 fox tracks were counted on the hillsides or near their base, and 9 tracks led away from the slopes onto the valley bottom for more than 0.5 km. No count of coyote tracks was kept, but they appeared to be ubiquitous on the flats and occasional on the slopes until 1986 when coyote tracks became much less common.

No coyotes were sighted between February 1987 and October 1988. In the winters of 1987 and 1988 fox tracks were very common at Devona and found often on the valley bottom. As indicated by tracks and direct observation, these foxes were hunting small rodents on the grassy flats. All of four sightings of foxes on the valley bottom occurred in 1988. In October 1988, I found a dead fox by the Athabasca River surrounded by tracks of wolves and a coyote. Fox sightings peaked at 13 in 1988,

Table 1. Sightings of Coyotes and Red Foxes at Devona, Jasper National Park, Alberta, 1 October - 31 March, 1980-1989.

Year	Observation days	Coyotes sighted	Foxes sighted
1980	8	1	1
1981	12	2	0
1982	18	6	2
1983*	18	11	0
1984	11	10	0
1985	17	10	2
1986	25	4	1
1987	22	3	2
1988	29	2	13
1989	26	6	3
Total	186	55	24

* In March 1983 a locally denning wolf pack disappeared (likely as a result of control measures on adjacent grazing leases), but after October 1984 a pack of 6-9 wolves again used the area as a year-round rendezvous site and hunting ground until it was reduced to five or less animals in August 1989.

when at least five different individuals were seen, as recognized by pelage colour. Total sightings of all years include 9 red phase, 6 silver or black phase, and 9 intermediate or cross foxes. In 1989, 8 fox sightings were reported by naturalists and wardens along the valley escarpments within 12 km of Devona, and 4 foxes were seen in the Jasper townsite (personal communication warden Wes Bradford and others).

The reasons for the fluctuation of coyote sightings reported in this study are not clear, but the highest counts of 1983-1984 coincided with the disappearance of the locally denning wolf pack (Dekker 1986) possibly as a result of control measures on adjacent provincial grazing leases at Brule. A pack of 6-9 wolves again used Devona as a home site and hunting range from the autumn of 1984 to the summer of 1989, when pack size dropped to five or less. Wolf populations in all of JNP declined in 1989 to a low estimate of 27-40 from maximum estimates of 80-180 in 1974-1976 (Dekker 1986).

Coyotes compete with wolves for food resources and there is evidence from JNP and elsewhere that wolves kill coyotes (Carbyn 1982). Killing by wolves was believed to be the cause of the elimination of coyotes from Isle Royale (Mech 1966, Peterson 1977), where ingress of transient coyotes is unlikely because the island is isolated from the mainland by at least 24 km of water. By contrast, interaction with wolves did not result in the exclusion of coyotes from Riding Mountain National Park, which is surrounded by agricultural lands where coyotes are common (Carbyn 1982). Even if wolves remain common in JNP, coyotes will probably not disappear because (1) they concentrate in areas of low wolf occurrence, and (2) they disperse into the park from settled lands to the east. Bowen (1981, 1982) found transient coyotes common in the lower Athabasca River Valley in JNP.

It is apparent that red foxes avoided the valley bottom in the study area, at least until 1987, but the reasons are hard to prove. No detailed food analysis was done. Cursory examination of some winter scats in January-March 1985-1986 revealed a high content of Bearberries *(Arctostaphylos uva-ursi)* which grow commonly on open hillsides which remain free of snow most of the winter. Their arid condition and sparse vegetation make much of these slopes poor habitat for the small rodents on which foxes and coyotes feed. Some valley bottom habitats in the montane ecoregion of JNP have a high diversity and density of small mammalian prey species (Holroyd and Van Tighem 1983). I hypothesize that these prey-rich valley bottom habitats were not available to foxes because of competition

Table 2. Habitat location of Coyote and Red Fox sightings near Devona, Jasper National Park, 1 October - 31 March, 1980-1989.

Habitat	**Coyotes**	**Red Foxes**
Semi-open valley bottoms	45	4
Semi-open hillsides	10	20

from coyotes, at least until 1987. Telemetry studies by Bowen (1982) found that coyote home ranges completely occupied the Athabasca Valley below the 1200 m elevation contour, with the ranges of single coyotes superimposed on those of packs and pairs. Voigt and Earle (1983) reported that fox families avoided coyote territories in Ontario. Dekker (1983) observed spatial segregation and hostile interaction between foxes and coyotes in central Alberta. In central Alberta and in JNP, I often found fox tracks on steep ravine banks and snow cornices. Precipitous, snow-covered terrain may be less hazardous for foxes than for larger canids because of the fox's lighter weight and relatively larger feet. In the study area, a fox that fled from a wolf, ran to the hills. Another fox, that fled from me, ran up a near-perpendicular, craggy river bank of 20-25 m in height. It is well-known that Bighorn Sheep seek out precipitous terrain to escape large canids. If foxes use a similar strategy, they might feel more secure in steep hills than in flat lands where coyotes are common.

Further observation in the Athabasca River Valley should determine whether the distribution of red foxes and coyotes will change. As of 1989, it has become evident that foxes have become far more common in JNP than before, at least on the hillsides of the lower Athabasca Valley, while coyotes appear to have declined except around the townsite and along roads and railways where they scavenge on the carcasses of traffic-killed elk, sheep and deer.

Acknowledgements

In 1980-1986, data on coyotes and red foxes were collected concurrent with wolf and ungulate surveys that were financially supported by the Recreation, Parks and Wildlife Foundation, the Canadian Wolf Defenders, and the World Wildlife Fund Canada. Observations in 1987-1989 were done under a volunteer contract with Parks Canada and with logistic support from Jasper Park Warden Office. P. DeMulder and B. Genereux assisted during field work. M. Dekker did the statistical test. Dr. Rolf O. Peterson made encouraging remarks on an earlier version of the manuscript, and JNP warden Wes Bradford reviewed the final version.

An earlier version of this paper was accepted for publication in the Canadian Field-Naturalist in May 1988, but has not yet appeared in print.

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Author's Address:
3819 - 112A Street, Edmonton, Alberta T6J 1K4.

Announcements

Alberta Banders

Doug Collister, of 3426 Lane Crescent S.W., Calgary, Alberta T3E 5X2, invites Alberta banders to contribute to an annual report of Alberta banding activities. Those who wish to contribute should contact Doug at the above address.

The Banff Centre

The Banff Centre for Management is offering a number of resource management courses this year including programs such as Sustainable Development, Valuing Natural Resources, Geographic Information Systems for Integrated Resource Planning, and an Environmental Auditing Symposium. More information on these and other programs can be obtained by contacting Felicity Edwards - Program Manager, Resource Management, The Banff Centre, Box 1020, Banff, Alberta T0L 0C0 or phoning 762-6422.

The Missing Letter

In the Fall 1989 issue of the Alberta Naturalist (Volume 19, Number 3, Page 92) a letter from Federation of Alberta Naturalists to Premier Don Getty appeared. The foreword noted that the letter, dated March 31, 1989 had never received a response from the Premier. Recently, the Premier's executive assistant advised us that this letter had not reached the Premier's office.

We regret the publication of this letter without having given the Premier an opportunity to respond. The Premier's response will be printed in the next issue of the Alberta Naturalist.

EARTH DAY April 22

This is the twentieth anniversary of a remarkable event that occurred in cities and towns all across North America on April 22, 1970. Millions of people gathered in their own communities that day to celebrate their connection to Planet Earth and to declare their commitment to work towards a vision of human society living in harmony with its environment. This year the celebration will be global. People in countries around the world will be thinking globally and acting locally as they find their own ways to pay homage to Mother Earth, our home. *(Reprinted from Bow Valley Naturalists Newsletter).*

This Was Our Valley

Detselig Enterprises is proud to announce the publication of *This Was Our Valley* "The True Story of the Bennett Dam" by Earl K. Pollon and Shirlee Smith Matheson.

The potential of Hudson's Hope, the third-oldest community in British Columbia, has been a recorded fact dating from the diary notes of Alexander Mackenzie and Simon Fraser. In the 1960's this area was recognized and became the site of the world's largest earth-filled dam, the W.A.C. Bennett dam. The reservoir giving force to the dam was named Williston Lake and covered 640 square miles of land.

This Was Our Valley deals with the conflicts that arose when a particular area became valuable to the rest of the world. Pollon and Matheson, who know the area intimately, tell the story of B.C. Hydro and the residents of Hudson's Hope. The dam's influence is carefully explored and well-documented as Pollon and Matheson resurrect the true stories that lie buried beneath the waters of Williston Lake.

Purple Martin Conservation Association (PMCA)

The PMCA is trying to locate and register a majority of the martin breeding sites in North America. By doing this they hope to coordinate the efforts of the martin "landlords" and help pass on to them the best techniques of martin management. You can help by distributing Colony Registration forms to all the purple martin enthusiasts in your community. To volunteer, simply write to the PMCA stating how many registration forms you would be willing to distribute. The address is: Purple Martin Conservation Association, Institute for Research and Community Services, Edinboro University of Pennsylvania, Edinboro, Pennsylvania 16444 U.S.A.

(from Memorandum to Banders #49 C.W.S. December 1989).

Line Art: Gordon Barth

NEWS

Canadian and American Bird Banding Offices

The U.S. Fish & Wildlife Service operates the Bird Banding Laboratory (BBL) which employs 30 people and is located at the Patuxent Wildlife Research Center in Laurel, Maryland. It is a section within the Migratory Bird Management Office, Branch of Surveys. The BBL serves both the United States and Canada and is the centre for coordination of all North American bird banding data. Annually, it processes records of 1.1 million banded birds and recoveries of 40 to 50 thousand bands. These activities occur at a direct cost of U.S. $1.3 million.

The Canadian Bird Banding Office works closely with the American office, but works only with Canadian banders. This office is responsible for issuing permits to Canadian banders (of which there are 300), receiving banding schedules, providing bands and approving projects. For example, permits are issued for research projects that contribute to the knowledge and management of bird populations. All the above data is eventually sent to the BBL in the U.S.

Nongame Bird Banding

C.W.S. Bird Banding Staff

Of the 1.1 million birds banded annually, about 50,000 are encountered by people and reported to the bird banding office in either Canada or the U.S. Seventy percent of encounters reported are of game birds, mostly ducks and geese, mostly reported by hunters. Yet 70% of all birds banded (approximately 800,000 per year in North America) are nongame birds. This means that only 30% of the recoveries come from the 70% of all nongame birds banded.

In the past decade, the numbers of banders has grown steadily and their needs have become more sophisticated. For example, increasing numbers of banders are using auxiliary markers like neck collars and radio-transmitters. This is a good development for banders, because more and better data can be obtained, but it has also resulted in an increase in our workload. The editing and coding of records are backlogged, much to the dismay of the people in the office. The BBL is now about five months behind in processing banding schedules, and it may take about eight weeks to send banding information and say thank-you to that person for reporting a band. Thus we should not be surprised that the number of bands being reported to us has declined.

At the same time there is wasted effort in the banding office as permit activities are reviewed and records are processed. There are many records which are never reviewed, analyzed or published. What can be done about this?

One thing being looked at right now is improving the internal management at BBL. That may be part of the problem. The other part is that banding projects need to be reviewed with an eye toward reducing nonessential banding, or banding that does not serve a useful purpose in the conservation of migratory birds. One cannot assume that "random" banding without a specific project in mind, will produce useful results. The files at BBL contain thousands of records of questionable value that are rarely used. These are a significant drain on both U.S. and Canadian resources, and an unwise use of scarce federal dollars which could be used for migratory bird conservation programs.

As a step towards resolving this problem, in January 1990 there will be a workshop for a representative sample of nongame bird banders from Canada and the U.S. to be held at Patuxent Wildlife Research Centre. This workshop will explore the purposes and limitations of contemporary bird banding, as well as plans and expectations over the next decade.

Address: Bird Banding Office,
Migratory Birds Surveys Division, Canadian
Wildlife Service, Ottawa, Ontario K1A 0H3.

"Emu" Sighted in Red Deer

Jim Robertson

The Kerry Wood Nature Centre gets a lot of strange phone calls, but perhaps the strangest came on September 8th, 1989 when an Emu was reported on Taylor Drive in Red Deer.

The staff naturalists can usually identify most birds by telephone description, but this one, I admit, had us stumped.

Camera in hand, I went to investigate and low and behold, there it was -- a very handsome Sandhill Crane. Cranes nest west of Red Deer, near Rocky Mountain House, but we have had no sightings of this species in Red Deer before.

The bird was apparently healthy, and eventually flew away.

Later in the fall, Sandhill Cranes were sighted at Hazlett Lake (Sept. 15/89) and near Delburne (east of Red Deer, Nov. 20-29/89).

Author's Address:
#1, 6300 - 45 Ave.
Red Deer, Alberta T5N 3M4.

Sandhill Crane (Photo: Jim Robertson)

Lyme Disease

Bird banders and others handling wildlife now have more than flailing talons and sharp teeth to look out for -- Lyme disease may have reached Alberta already.

The disease, caused by a bacterium (Borrelia burgdorferi), is transmitted primarily by ticks although deerflies, horseflies, and mosquitoes may also act as carriers. Lyme disease is prevalent in the eastern and western states and has been reported in many provinces. The most common species of tick which carry Lyme disease are not found in Alberta, however, other species are successful carriers in lab situations.

Small rodents such as mice are excellent hosts for Lyme bacteria. Larval ticks ingest bacteria when taking blood from infected mice. After moulting, these ticks attach to vegetation. When an animal such as a bird, ground squirrel, hare, or person brushes past, they become attached to their new host. After feeding they again drop off, moult, and search for a new, larger host - a deer, elk, or mountain sheep.

Ticks are most common in the foothills, mountains, and parkland areas of the province in brush or tall grass during the summer. To transmit the disease, a tick must be attached for at least 18 to 24 hours.

Lyme disease is characterized by a red rash often spreading in a circle from a tick bite. The rash can start 3 to 30 days after the bite and may be accompanied by fever, chills, a headache and other infection-like symptoms. Serious long-term problems may follow this infection but antibiotics can kill the bacteria, particularly in the early stages of the disease.

Although Lyme disease is treatable, the best course of action is prevention. If possible, stay away from long grass and brush during tick season. Wear long pants and do a thorough check of your body upon leaving the field.

More information about Lyme disease is available through local health units. Ask for the Alberta Health publication Lyme Disease An Alberta Perspective by Dr. Margo Pybus.

Saskatchewan Natural History Society Annual Weekend Feild Meeting (June 8-16). Field trips will take in Grass River Park and by train from Thompson to Churchill. Three days in Churchill, back in Saskatoon June 16.
For further information, costs, etc. contact Stan Shadick at 3F-1800 Main Street, Saskatoon, Saskatchewan S7H 4B3 (Phone 955-3242).

The Prickly Sculpin (*Cottus asper*) Recorded from Alberta (with a key to the sculpins found in Alberta)

Wayne Roberts

One specimen of the Prickly Sculpin was captured in June 1989 by L. Hildebrand, B. McTague, and G. Joseph of R.L. & L. Environmental Services while beach seining along the margin of the Peace River 3 km upstream from the mouth of Notikewin River. Other sculpin species familiar to the collectors (the Spoonhead Sculpin *C. ricei* and/or the Slimy Sculpin *C. cognatus*) were also taken in the seine hauls but the Prickly Sculpin specimen was sufficiently different that it was preserved and brought to the University of Alberta Museum of Zoology where it was identified by the author and catalogued (UAMZ 6958). This is the first record of this species in Alberta and brings to five the total number of sculpin species found in this province. The Prickly Sculpin is one of four Pacific drainage fish found only in the Peace River in Alberta and presumed to have moved downstream following headwaters transfer from west of the continental divide. Two cyprinid species, the Redside Shiner *Richardsonius balteatus*, and the Northern Squawfish *Ptychocheilus oregonensis* and a catostomid, the Largescale Sucker *Catostomus macrocheilus* are well known from the Peace and Smoky rivers (McPhail and Lindsey 1970, Paetz and Nelson 1970).

The proximity to Alberta of the Prickly Sculpin in the B.C. portion of the Peace River in B.C. was noted by Paetz and Nelson (1970); its discovery in Alberta was not unexpected. It is uncertain whether the specimen collected is part of an established Alberta population or an individual displaced from the upper reaches of the river. For the first month or so following hatching, young Prickly Sculpins swim near the surface (Kresja 1967) and, since they are weak swimmers, may be easily washed downstream by the high flows that often occur during early summer. Sculpins were not common at the collection site where the silted substrate of the river bed provided poor sculpin habitat (L. Hildebrand pers. comm.).

The specimen collected is a mature male 114.3 mm total length. It is densely covered by stout prickles (from which it gets its name) such that the skin is rough (like sandpaper) to the touch. While smaller Spoonhead Sculpins are densely prickled, individuals over 80 mm long have most of their spines worn away and the dorsolateral surfaces feel smooth (Roberts 1988). Other Cottus species found in Alberta have small prickles confined to patches behind the pectoral fins and always feel smooth skinned. The dark blotch on the dorsal fin is also a diagnostic character; however, breeding males of other species often have dark pigment in their dorsal fin membranes.

Prickly Sculpin, Alberta's newest fish species.

(Photo: Wayne Roberts)

Following is a key to the five sculpin species known to occur in Alberta. It may be used to identify live sculpins in the hand without examining internal characters such as palatine teeth, or counting structures such as fin rays. More detailed information is included in each statement in the key, though it is often possible to identify specimens using the first or second listed characters (those readily seen externally without counting). Two or more characteristics in the same statement underlined indicate a set of characteristics that, taken together, are unique to one species among those found in Alberta.

1a Dorsal fins well separated, gill membranes free from isthmus and united.
Deepwater Sculpin Myoxocephalus thompsoni
1b Dorsal fins touching at base, gill membranes joined to isthmus. Cottus (2)

2a Lateral line extending to caudal fin base, single pore on midline of chin; body often covered with small prickles. (3)
2b Lateral line ends below second dorsal fin, paired pores on midline of chin; body not covered with prickles. (4)

3a Head and snout rounded in profile; gently curved preopercular spine; body covered with dense prickles; dark oval blotch in first dorsal fin membrane; anal fin long (about equal to distance from tip of snout to first dorsal fin); palatine teeth present.
Prickly Sculpin C. asper
3b Head flat, snout not pointed or rounded; preopercular spine strongly curved upward and inward; no dark oval dorsal fin blotch, anal fin base length less than distance from

tip of snout to first dorsal fin; palatine teeth absent. Spoonhead Sculpin C. ricei

4a Anal fin base length equal or greater than distance from anal fin to front of pelvic fins and greater than distance from dorsal fin to front of eye; isthmus broad (wider than length of eye); palatine teeth present.
Shorthead Sculpin C. confusus

4b Anal fin base length less than distance from anal fin to front of pelvic fins and equal to distance from dorsal fin to front of eye; isthmus narrow (as wide as length of eye); palatine teeth absent.
Slimy Sculpin *C. cognatus*
(See Alberta Naturalist 18(4) p.124 for illustration of proportional differences between Shorthead and Slimy Sculpins)

With the discovery of the Prickly Sculpin there are now 52 known, naturally occurring fish species in Alberta. Paetz and Nelson (1970) recorded 45 native species in Alberta in the first edition of the Fishes of Alberta. During early 1991 we may look forward to a revised, expanded edition including recently recorded species and updated accounts of previously recorded species.

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Roberts, W.E. 1988. The sculpins of Alberta. Alberta Naturalist 18(4):121-127.

Author's Address:

Dept. of Zoology
University of Alberta, Edmonton, AB.

Innovative Mosquito Control Gets Community Support In Red Deer

In 1987, the citizens of Red Deer turned thumbs down on a chemical solution to their mosquito problem, and opted instead for an environmentally sustainable program which seeks to limit biting fly outbreaks through biological means.

That program, says Red Deer parks planner Peter Wasylyshyn, has turned out to be cheap, effective, and widely supported by the community. "In a recent person-in-the street survey by the Red Deer Advocate,"he points out, "five out of seven were very aware of our program, and were fully in support of it. "We're covering an area three to five kilometres around the City; and we're doing it with two people and a budget this year of $65,000. Also," he says, "the environment is being kept clean, the strength of the natural mosquito predator population is growing, and the public likes what we are doing."

This story actually began years ago when it became apparent that Red Deer residents were resisting all suggestions for chemical control programs. "There was a strong environmental feeling," says Jim Robertson of the Kerry Wood Nature Centre. "That public resistance to spraying left Red Deer with an intact ecosystem, and our natural predators such as birds, dragon flies, flatworms, and midges remained unaffected."

An entomologist, Grant Moir, was lured away from the City of Edmonton on a two-year contract. His preliminary investigations in 1987 and 1988 revealed the relative strength of the natural environment in and around Red Deer. Because pollution levels were low, permanent water bodies were still experiencing strong red shrimp blooms in the springtime, good evidence their ecosystems still worked. He was convinced that biological control measures for mosquitos would work because their natural predators were still present.

Bacillus thuringiensis israelensis was chosen as the control agent, and the program began in 1989. Up to 800 temporary or permanent water bodies had to be monitored and treated at the moment when the mosquito larvae were most vulnerable. The mosquito control material looks like corn meal, and is broadcast into the water by technicians in hip waders using hand operated grass seeders. Bacillus works by causing the stomachs of mosquito and other biting fly larvae to rupture.

An estimated 80 to 85 percent success rate has been achieved so far this year, while the remaining mosquito larvae help to maintain natural predator populations. Some natural predators are even "bucketed out" to areas where they are missing, for example in several temporary water bodies. Between the treatment to standing water and the action of predators, mosquito numbers have been kept to an acceptable level. In fact, it is working so well that continued support for the program was included in the platforms of candidates for October's civic election.

The story of the program - what it does and how it works - has been well told to the people of Red Deer. Media coverage has been extensive. A display by the city's parks department during Environment Week was extremely popular, and school science and environment projects based on the program are emerging.

Contact Grant Moir, c/o City of Red Deer Parks Department, Box 5008, Red Deer, Alberta T4N 3T4. Phone 342-8159.

(reprinted from Alberta Conservation Strategy Update August 1989.)

URBAN PARKS PROGRAM - PHASE II

by Kyle Clifford

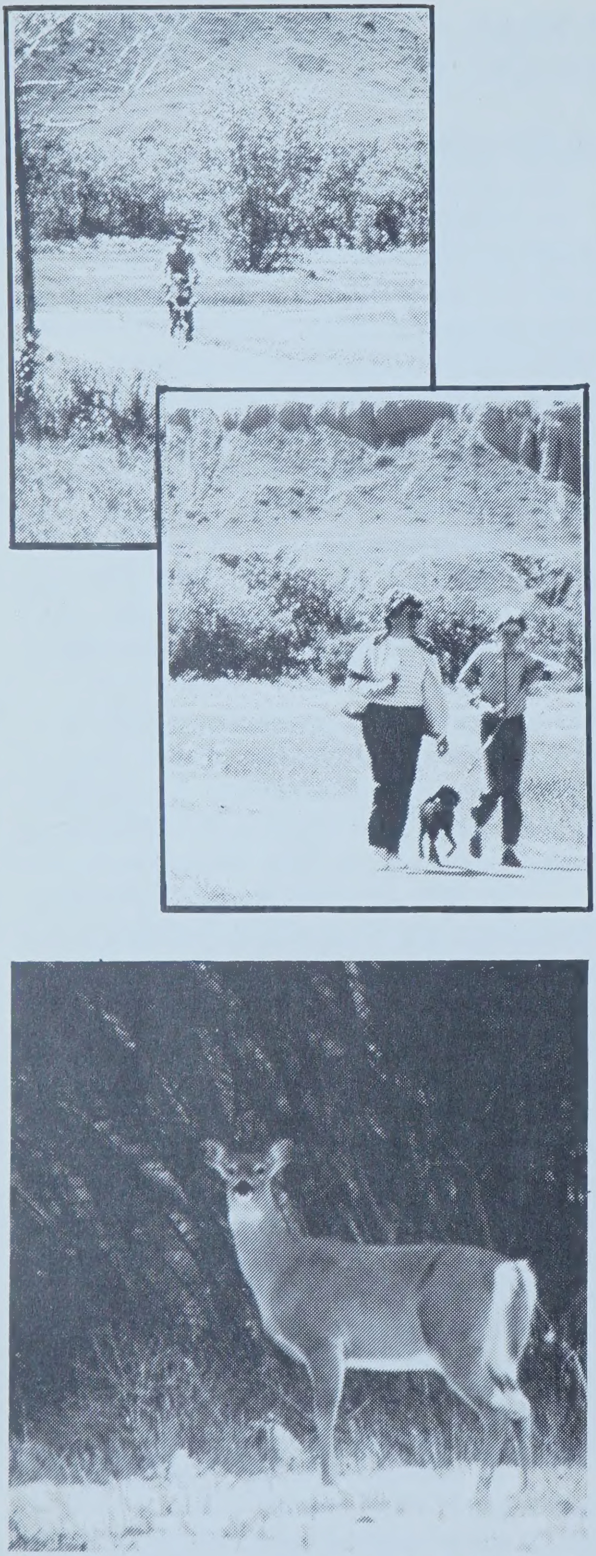
Urban parks are open space landscapes located within an urban area dedicated for recreation and aesthetic purposes. An urban park may be natural or man-made and is used for both passive and active forms of recreation. Park facilities are usually limited to areas and buildings that are designed and constructed to support outdoor recreation activities.

The first urban parks in Alberta were developed during the 1970's. Both Fish Creek Provincial Park in Calgary and Capital City Recreation Park in Edmonton were developed primarily by the Alberta Government. The Department of Recreation and Parks continues to operate Fish Creek Park while Capital City Recreation Park is operated by the City of Edmonton with funding support from the province.

In 1979, the Government of Alberta Announced the Urban Parks Program to provide funding for park development in the five cities of Grande Prairie, Lethbridge, Lloydminster, Medicine Hat and Red Deer. A total of $86.6 million was expended for the planning, design, purchase of land and construction of these parks.

As with the previous urban parks, capital funds for park development came from the Alberta Heritage Savings Trust Fund. However, under the Urban Parks Program each municipality was responsible for directing their own facility development which resulted in landscapes and facilities unique to that area.

In 1989, the province announced an extension of this program which committed $82.2 million plus administrative costs for the development of nine new urban parks and



Urban Parks (Photos: Kyle Clifford)

additional funding for park development in the cities of Edmonton and Calgary. The new municipalities are Airdrie, Camrose, Fort McMurray, Fort Saskatchewan, Leduc, St. Albert, Spruce Grove, Strathcona County and Wetaskiwin.

One of the goals of the Urban Parks Program is to ensure easy access to open space parkland within the urban setting. This provides for an improved quality of life for the vast majority of Alberta residents who live in an urban environment. Parks and open spaces have a proven healthful impact by providing a natural setting for social interactions.

Parks also provide wildlife with necessary habitat for survival. It is quite common to see deer and snowshoe hare tracks in the parks in all the major urban areas and quite often the animals themselves may be spotted. The presence of birds and animals in the urban park areas enables city dwellers to develop a greater understanding and appreciation for the natural environment and its benefits to mankind.

The Urban Parks Program also encourages the preservation of natural areas within each municipality. Over the years Albertans have become more aware of the need to protect their urban natural environments and have developed a pride in their own unique municipalities.

Upon completion of the current capital development phase, almost 2/3 of the residents of Alberta will have ready access to an urban park in their community.

Author's Address:
Alberta Recreation and Parks
10405 Jasper Ave., Edm., AB T5J 3N4.

Canadian Nature Federation June 11 - 14, 1989, Charlottetown, P.E.I.

Rob Gardner

This year's theme - "The Island Way" - intrigued me, being a native prairie boy. Canada's smallest province really is different, from the brick-red soil to the closely knit community. Most of all, the physical separation from the mainland creates a quiet but determined independence in the people.

I spent five days on the island, driving dusty dirt roads, sliding down dunes, and dining on seafood every night. It seemed to be exactly the opposite of Alberta; the island is humid, green, small, and slow,. At the same time, the people feel a change is quickly approaching. They sense that the new ideas brought by tourists will replace the old. For a community with 300 years of tradition, this can be unsettling.

Our field trip to several key natural areas pointed out both the pros and cons of the small scale in P.E.I. These places seemed more like urban parks, because they were only a few hectares in size, and were surrounded by farms or acreages. But because the pace of life is slow, parks didn't seem to need as much space.

Certainly, few enough places still retain natural vegetation. Logging throughout the 19th century left only 10% covered by the native Acadian forest. Over the last 70 years, 40% of the Island has reverted to white spruce from potato fields. Although this gives a green appearance, these trees are already dying of old age, brought on by mineral deficiency.

On a positive note, the Island is rapidly implementing a conservation strategy. Motivated by Premier Ghiz, this document tries to bring agriculture into harmony with the environment. Enhanced tourism results, and, according to the fairy tale, brings riches to all.

Bicycle touring remains an underdeveloped activity. The recently abandoned railway lines offer a tremendous potential for a cheap and safe trail network. Pedal-powered tourists would bring business to the area, while leaving a minor impact.

For now, Prince Edward Island presents visitors with a charming but tamed landscape. Relaxation is the byword here, and this commodity may become its most important.

53rd Federal - Provincial Wildlife Conference June 20 - 23, 1989, St. John's, Newfoundland

Rob Gardner

You may wonder what this impressive-sounding meeting is, and why we send a delegate. For a start, it is impressive. The directors of wildlife agencies from across the country gather to exchange ideas and coordinate their action. In the last few years, major non-government organizations have been invited as well. Together, these people shape Canada's wildlife policy.

Secondly, this conference is very informative. Excellent speakers discussed the theme, "Integrated Land Management for Wildlife". Their insights have enabled me to better assess management proposals suggested for Alberta. We have much to learn, and this conference helps us stay in touch.

Speakers from Oregon and New Brunswick presented integrated land management with very different but positive approaches. Albertans can learn from both, and create a system suitable for our particular circumstances.

In Oregon, the Forest Service conducts all inventories, and draws up a management plan. They are guided by restrictive legislation aimed at both controlling loggers and protecting endangered species. Over 300 species of wildlife are considered. Their total habitat requirements are included when the logging plan is written. The proposed area is put out to tender, with all the methods specified. These very detailed requirements include, for instance, the number of snags of each size to be left.

New Brunswick uses a very different approach, depending on the voluntary compliance of the companies. The Fish & Wildlife Division indicates the optimum age structure of the forest. The company is free to achieve this in any way it wishes. Monitoring is made possible by accurate, up-to-date inventory of the forest. This system, still in its early stages, seems to be working quite well.

Both systems require a good knowledge of what species presently live in the forest, and what particular needs they have. They also assume trained staff who want to conserve all animal and plant species. In Alberta, we have a long way to go in both of these areas.

Newfoundland also seems a long way from integrated resource management. The large majority of people believe that wildlife is there to be used. The miracle is that more species are not actually extinct. Catch or bag limits are based more on the ability to kill than any estimate of the number of animals present or their reproduction. As one species is no longer economical to catch, they move on to another.

On a positive note, the field trips were spectacular! We floated past thousands of puffins, with over a million storm petrels hiding in burrows on the same island. (They don't taste good.) Humpbacked whales cruised along the coast, filtering capelin from the sea. I found it fascinating to squish through tundra vegetation within sight of the ocean.

My visit to Canada's oldest city and youngest province was also a paradox. I found state- of-the-art ideas on wildlife conservation mixed with backward practices. The overwhelming abundance of wildlife still visible in Newfoundland is a living testament to the productivity of the sea.

Author's address
548 - 11 Street, SE., Medicine Hat, Alberta
T1A 1T3.

Canadian Council of Ecological Areas (CCEA) Meeting/Workshop'89, Aug. 10-13, 1989.

Don Stiles

The Canadian Council of Ecological Areas (CCEA), has been meeting annually in different parts of Canada so that those with an interest in ecological reserves can keep in touch with their counterparts in other provinces. This year Alberta hosted with a Thursday evening through Sunday meeting at the University of Alberta.

The CCEA describes itself with this statement: "The Canadian Council on Ecological Areas is an incorporated non-profit independent national forum established in 1982 to encourage the selection, protection, and stewardship of a comprehensive system of ecological areas of

Canada. It draws its membership from federal, provincial, and territorial government departments, non-governmental organizations, universities, and private citizens.

CCEA will work toward completing a system of ecological areas by providing a forum for communications between interested agencies and individuals."

The weekend included addresses by Hon. Dr. Stephen West (new Minister of Rrecreation & Parks), Yorke Edwards (B.C. naturalist), Dr. George Francis (Ontario biologist), and Brian Rizzo (Canadian Wildlife Service), a panel discussion, workshops, provincial reports, resolutions, and a field trip to Wagner Bog.

The following are detailed reports on Dr. West's address, the panel discussion, and one of the workshops. These items will give the flavor of the conference.

West Address

Dr. West outlined the Ecological Reserves situation in Alberta. The 1981 Ecological Reserves Act set guidelines including a) reserves must be located on crown land (57% of the province) and b) must be representative ecological systems.

Twelve Ecological Reserves have been set up since 1985, with three standing on notation (still to be finally designated). He suggests that the challenge over the next few years will be management and public awareness of ecological reserves.

He brought greetings from Hon. Leroy Fjordbotten, Alberta Minister of Forestry, Lands and Wildlife, and outlined the initiatives of that department: 1. Natural Areas Program with 112 in existence, and 8 on deck. These are protected from development, and a volunteer stewardship program has been instituted. 2. Habitat Retention Program in the privately owned white zone (28% of the province) which gives revenue to those who set aside habitat. 3. Soil Conservation Program. 4. Wetland Enhancement.

In answer to questions from the floor, Dr. West noted that the first phase of the Ecological Reserve system will be completed within 3 years. The priority now is to manage existing reserves and educate public and politicians. When asked about new forestry agreements, Dr. West replied that notations are put on recreational areas, wilderness areas, and ecological areas within forest management areas and further areas can be excluded, if needed.

Panel Discussion - Meeting the Challenges of the Future Panelists were Arlin Hackman (World Wildlife Fund), Dr. Jim Butler (U. of A.), Dr. Richard Revel (U. of C.), and Jamie Bastedo (Gov't. of N.W.T.).

Moderator Dave Dodge began by quoting from Stan Rowe, of Saskatoon.

Humans discovered the environment first when we left the earth (for the moon). Life is a factor of the skin of the earth. Endangered species cannot per se be preserved unless the ecosystem is preserved. Today we gain about 1 million people per day and lose about 1 species per day.

We have a World Conservation Strategy in place with about a decade left to save endangered species. Our action to preserve ecosystems has been limited to date.

The moderator then asked panelists questions, with each allowed an answer.

Is there an ecological crisis? Can Ecological Reserves help?

YES. Preservation is a cheap form of genetic banking. It can improve our cultural options (e.g. future whale watching, etc.). Ecological Reserves can be thought of as indicator spaces for instance, to measure pollution from the outside.

Why are we so slow in establishing ecological reserves? What can we do?

Civil disobedience will come (if we don't speed up).

We need targets and timetables for the planet. Public policy has been to respond to local changes. We need to develop with minimal disruption.

What size of reserves do we need? This is site specific, e.g. polar bears in Carolinian Forest. Replicates are best in case of disaster. Minimum viable population is an important scientific theory to use.

How do we facilitate sustainable development?

A necessity. Roundtables, land use planning. Get your letters in now.

What is the key to the future?

Educate the people, recognizing nature changes. Sell sustainable development. Focus on gene conservation. Keep options open (e.g. to reclaim after development). Add a report on the environment to the report on business.

What can anyone do?

Give the household an outlet, e.g., blue boxes.

Change the rules if they are not suitable, e.g., closure of recycling plant in Edmonton due to lack of political support.

Buy an acre of rainforest in Costa Rica.

Avoid polarization - it prevents dialogue.

Workshops - Ecological Areas Advisory Committees - Boon or Boondoggle.

Chairman, Mike Day of Alberta Energy asked the assembled which way they voted at the beginning of the session 3: Boon, Boondoggle, or Undecided. Most felt Advisory Committees were a Boon (if the government listened to them). He asked after the session if any had changed their mind. (Few did).

Spokespersons for each of the 4 Western Provinces outlined their history of advisory committees: Alberta - now has a 12 member appointed committee. 6 government (mostly assistant deputy ministers),and 6 citizens (mostly ranchers).

They have been attending open houses to candidate ecological reserves. Benefit - it lends weight to the project and synthesizes data for the minister. Conflicts can be resolved or borders established.

B.C. had an active committee of 11 to 18 members from 1971 to 1984, when it was not reappointed because it was playing an advocacy role - not impartial. B.C. now has 126 ecological reserves with 30 to 50 candidates.

Manitoba has an advisory committee active in the selection process but not in land use conflict unless asked.

Saskatchewan had lots of committees in the late 70s, but a government change in the 80s removed them. There has been only 1 year recently with an appointed committee. They have 1 ecological reserve, with 1 proposed (Athabasca Sand Dunes).

Discussion followed: Barry Jenkins of Wagner Natural Area suggested that government advisory committee would have given them a voice to government, and that a proposed highway which is threatening the natural area would not have been considered.

All in all, it was a productive and thought-provoking weekend.

Author's address:
20 Lake Wapta Rise SE., Calgary, Alberta
T2J 2M9.

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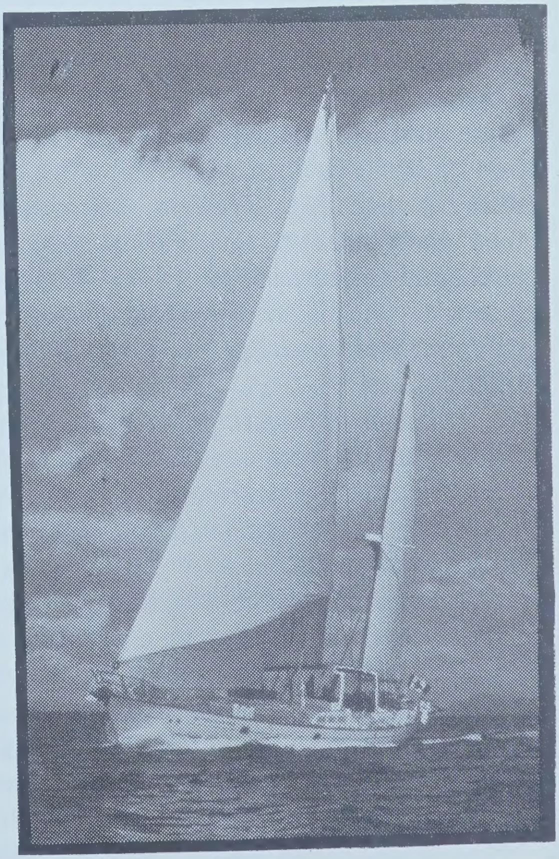

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Book Reviews

WINTER BIRD FEEDING - AN ALBERTA GUIDE

By Myrna Pearman, illustrations by Gary Ross, reviewed by Joy and Cam Finlay

A handbook on feeding birds in Alberta has just been published. It is a treat to see the book, written, illustrated and published by Albertans. Myrna Pearman has organized practical information, much of it gleaned from her own experience and others who have been tending feeders around Red Deer and Calgary and other spots in the province. The book ends with an invitation to contribute comments, ideas or observations for a revised edition to include more specific information about 60 birds, their behaviour, food preference and feeder design. All the winter birds and their food preferences are described in this book, also some (Mourning Dove, Wild Turkey, Steller's Jay, Chestnut-backed Chickadee) that are rare or usually non-resident in the province.

It is an attractive guide, with some colour photos. Very clear black and white drawings of birds and feeders enhance most of the pages. The text is clear, concise and to the point.

The information is relevant. We have been using it as a ready reference. For example, when we were asked for advice on what to provide for a Ruffed Grouse, or how to keep the Pine Grosbeaks coming back. We thought we were mighty clever when we devised a screen beneath our feeder from a mesh bag, to catch the spilled seeds, but here it is in the book, too!

The question about which sunflower seeds birds prefer is raised. We conducted a winter long study at the John Janzen Nature Centre in Edmonton and the results were similar to what was found in the eastern U.S.A. The large birds such as Blue Jays and Grosbeaks take the large striped sunflower seeds. Small birds such as chickadees and nuthatches take the small black seed variety of sunflowers. With this new book and the invitation to correlate observations from all over Alberta we have a real opportunity to build a knowledge base, even on which type of sunflower seed is preferred.

From the focus of feeding birds in winter, this booklet begins with a section on getting started and ends with a Resource File that includes a list of Alberta organizations and nature centres and a section listing field guides and periodicals. We are disappointed to see that Nature Canada was not on the list of periodicals, especially since we have so many members and affiliate organizations, such as the Federation of Alberta Naturalists, of the Canadian Nature Federation in Alberta. As too often happens, the only periodicals listed are all from the US.

This is not a ''set-up-a-feeder and live happily ever after'' book. Among the responsibilities and the problems identified are predators, pests, and hazards, including cats, spring blizzards, house sparrows and window accidents. The variety of feeders given in the drawings are as diverse as they occur across the country - from elaborately constructed hopper style to wax cardboard milk cartons.

Although the claim to be a complete account of all aspects of feeding winter birds in Alberta is an obvious overstatement for a 64 page booklet, it is surely the most complete guidebook for Alberta at this time. We recommend it highly as a useful reference for anyone interested in winter birds and feeders. The retail price is $10.95, available direct from Ellis Bird Farm Ltd., Box 2980, Lacombe, Alberta T0C 1S0.

"Finding Birds In Elk Island National Park" *by Judith Cornish*

Review by Gerry Lunn

Not long ago, a friend and I were discussing the value of bird finding guides. I had questioned the merit of describing particular roadside pull-offs and even individual trees in which to find certain bird species. My friend then related how he had once followed specific instructions in one such guide to southeastern Arizona and found the two species the author had said could be found at that spot in that tree! Finding Birds In Elk Island National Park by Judith Cornish is not this sort of guide.

Then again, neither is it a comprehensive tome like the excellent Birds of the Okanagan by Robert, Richard and Sydney Cannings. However, in its 57 pages of text, Mrs. Cornish has managed to effectively summarize what birding can be like in the wonderfully diverse variety of habitats of Elk Island. At the same time, she leads the reader on a far-ranging, albeit brief tour along the trails and around the lakes of this beautiful area.

In the first few pages the author states "This book is not a field guide. It should, however, make bird finding in the park an easier and more insightful experience." Indeed, its light weight and small size make the book a handy companion to your favourite field guide. And the refreshing approach of exploring the birdlife by the habitat in which it is commonly found is bound to make your birding easier and more insightful.

However, it is with the descriptions of particular behaviors, such as nesting, feeding, courtship and defence that I derived the most pleasure. Too often, birding has become a "numbers game" with the need to see just one more bird to add to the list. Much joy can be derived by watching a few minutes longer to see that Sapsucker feeding on insects "attracted by the sweet-tasting sap" oozing from freshly drilled holes, or the Northern Oriole weaving grasses to make a "tightly thatched bag" suspended from a branch as its nest. By including such behavioral notes, the author entices the reader to explore.

If you're looking for a book with lots of colour illustrations, pass this one by -- but it would be your loss. Complementing the text are a series of competently rendered B & W sketches by artist Deidre Griffiths. These are not the accurate depictions you'd find in say National Geographic's Birds of North America for as I've said, this is not a field guide. Rather, the drawings show the birds as integral elements of the habitats in which they are typically found, from a sometimes unusual perspective. My favourite is of Brown-headed Cowbirds on page 29. I was immediately reminded of Robert Bateman's Rhinoceros Head and Oxpecker where the head and forequarters of a rhino are the landscape and habitat against which the Red-billed Oxpecker is set. In similar fashion, Mrs. Griffiths has conveyed a real sense of cowbird behavior by showing the birds ground-feeding against a larger than life backdrop of bison foreleg and snout.

Other illustrations, such as migrating Sandhill Cranes and Red-tailed Hawk and nest portray the birds in ways that might typically be seen by the reader were he/she to visit Elk Island. Similarly, the text reads as you might experience your visit such as "If you stand quietly for a few seconds anywhere in Elk Island, you will hear the whisper of the wind in the leaves of the aspen poplar." Following such a description, the author goes on to describe bits and pieces of the life histories of just some of the birds you'd expect to find in such a forest. Enough to whet your appetite and long for spring.

Mind you, as the author points out in the last few pages of the book, birding in Elk Island can be just as rewarding in the winter as in the spring. Not only can one see winter visitors such as Northern Shrike and Pine Grosbeak, but beginner birdwatchers can hone identification skills on a smaller variety of bird species.

Especially helpful is the Bird Checklist in the Appendix which in easy to read form summarizes the abundance, status, arrival/departure dates, and habitat use for the 228 bird species which have been seen in Elk Island. A bar graph designed to show, over an "average" year, the probability of seeing the birds (rather than abundance) would have been a useful addition, but the records of year round field sightings required to generate such a graph may not have been available.

There are only two drawbacks which I think are worth mentioning.

The first is the lack of any detailed maps of the trials. As the majority of the areas described in the book are accessible only by hiking trail, maps showing habitat, topography and degree of difficulty of each of the trails should have been included in the Appendix. Although the author directs the reader to Walk on the Wild Side by Jean Burgess, a trail guide to Elk Island, a bit more detail in this book would have been appreciated.

Secondly, since many who buy this book will skim through to see the names of birds one can expect to see, printing the names of the birds in bold type would have been useful.

Notwithstanding these two points, I enjoyed reading Finding Birds In Elk Island National Park and would recommend it especially to those who have yet to visit "The Island".

REPORT from Alberta Bird Atlas Management Committee Representative

Pat Clayton

Number 3 of a 5 year project is a difficult year and true to form, this one was no exception.

The Alberta Bird Atlas Project's Executive Director, Jack Clements, felt strongly enough about lack of continuous administrative or project headquarters help that he gave notice to the Management Committee on October 23/89 that he was finished Dec. 31/89 unless the situation was remedied. The Federation Executive endorsed a suggestion from its M.C. representative that we, the Contract holders, try a compromise; split the tasks expected, the time and available funds between two positions. Unfortunately no compromise could be reached and the Federation accepted Jack Clements' resignation date of December 31/89.

Search for a replacement and/or headquarters help is underway - complicated by the December holidays, 'flu and the difficulty of getting the Management Committee together.

A funding application for the Executive Director position reflecting the cost of living increase since 1986 was filed with the R.P.W. Foundation in September. We should know officially if it is successful by the end of January. Till then the Project has one PEP person on staff till March 9th. at minimum wage ($4.50/hour).

The Cash Calendar is proving to be a time consuming, labour intensive means of raising funds for the Project. The number of volunteer hours required to administer the campaign was underestimated. Nor was enough preliminary work done on recruiting a "sales force" among other than Atlas Regional Co-ordinators and our Member Clubs. Indications now are that word of mouth, business contacts, and gamblers-at-heart are the best market. Interest should increase in these groups when the first draw publicity is released.

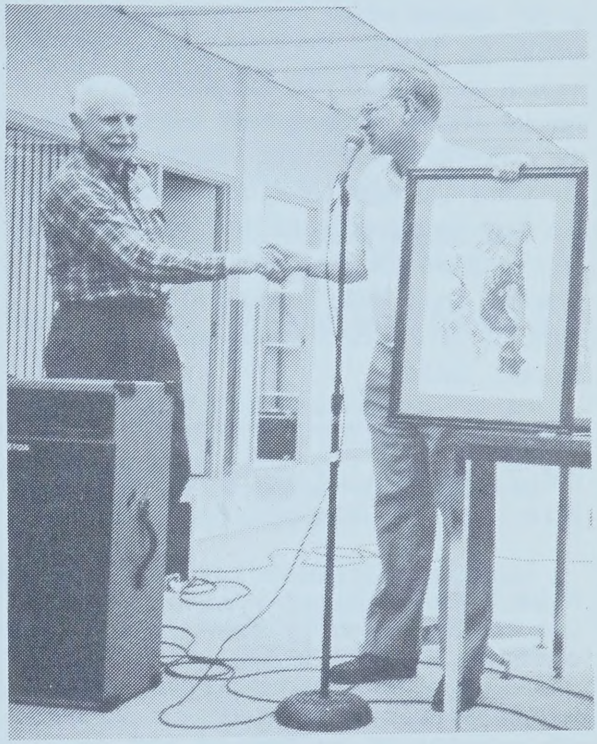
In retrospect, though 1989 has not been an easy year, the Atlas Project owes its high profile and very existence to the hard work and dedication of Jack Clements. Without his personal commitment during those start-up years, atlassing the birds of Alberta would have remained the dream it has been since the late 1970s.

FAREWELL TO JACK CLEMENTS

Dr. John (Jack) Clements' resignation from the position of Executive Director, Alberta Bird Atlas Project took effect on December 31, 1989.

For over three years Jack worked extremely hard to get the Atlas project from the concept stage to a practicality. He accomplished this by raising the profile of the Atlas and setting in motion the steps required to spread volunteer atlassers throughout the province. His contribution to the Atlas project was acknowledged by Don Stiles, incoming President, at the Federation of Alberta Naturalists' annual workshop and meeting. Jack received a framed print of Mountain Bluebirds as a momento of his work. This beautiful print was donated for the occasion by the Ellis Bird Farm, one of the many individuals and organizations recognizing Jack's contribution to the work of mapping the location and numbers of birds which regard Alberta as their breeding territory.

A "Thank You" to Jack from all birders and from all those who just like to see birds around. May your future endeavours be successful and your birding days be full of joy.



Jack Clements being thanked by Don Stiles, President of F.A.N. (Photo: Pat Clayton)

WELCOME TO DAVE ADIE, Executive Assistant, A.B.A.P.

Archibald David Adie comes to the Alberta Bird Atlas Project after 21 years service with Parks Canada, mainly in administrative positions. These took him and his family across Canada and led to postings in such diverse areas as Wood Buffalo National Park and Waterton Lakes. After retiring from the Federal Civil Service Dave and his family took up residence in

Spruce Grove and he has now accepted the challenge of Executive Assistant for the Project - just to keep his hand in.

Dave's wealth of experience and knowledge of administrative functions will be of great value to the new Executive Director, freeing that position from the day-to-day routine which was becoming overwhelming. Along with Dave's many duties he will be involved with the planning of special events, working with volunteers at the office in the Museum, (which includes the Cash Calendar crew) and administering the field programs which include the remote area program and the data card control system. Dave looks forward to meeting more of the Project's volunteers in the months ahead.

WELCOME TO ALBERT BRULE Executive Director A.B.A.P.

Albert Brule joins the Alberta Bird Atlas Project with an extensive background in non-profit management, communication and fund raising. Most recently he was on staff at the University of Alberta as Manager of marketing and development in the Fine Arts division.

Albert is active in the community as a teacher, consultant and writer on such topics as non profit organizational development, board management and fund raising. He is an advisor to the Voluntary Sector Management Program at Grant MacEwan Community College and is on the Executive Committee of the Alberta Association of Fund Raising Executives.

Recently he was recognized by the National Society of Fund Raising Executives and was awarded the designation of CFRE (Certified Fund Raising Executive).

He looks forward to his involvement with F.A.N. and, in particular the continued success of the Alberta Bird Atlas Project.

Recent Publications on ALBERTA NATURAL HISTORY

Compiled by David M. Ealey and Martin K. McNicholl

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Part 2 of Recent Publications to follow in the summer edition of the Alberta Naturalist.

Cover Photo: Globe-flower (Trollius albiflorus) (Photo: P.S.Debnam)

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(a) To encourage among all Albertans, by all means possible, an increase in their knowledge of natural history and understanding of ecological processes;
(b) To promote an increase in the exchange of information and views between natural history clubs and societies in Alberta;
(c) To foster and assist in the formation of additional natural history clubs and societies in Alberta;
(d) To promote the establishment of natural areas and nature reserves, to conserve and protect species, communities or other features of interest;
(e) To organize, or coordinate, symposia, conferences, field meetings, nature camps, research, and other activities whether of a similar or dissimilar nature;
(f) To provide the naturalists of Alberta with a forum in which questions relating to the conservation of the natural environment may be discussed so that united positions can be developed on them, and to provide the means of translating these positions into appropriate actions.

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DEADLINES for F.A.N. project reports are:

Alberta Christmas Bird Counts, January 30, Andrew Slater, 152 Oakside Circle S.W., Calgary, AB T2V 4H2

May Species Count—Plants, July 15, J. Derek Johnson, Northern Forestry Centre, 5320 - 122 St., Edmonton, AB T6H 3S5; —*Birds and Mammals*, July 15, Don Stiles, 20 Lake Wapta Rise S.E., Calgary, AB T2J 2M9

Compiler cooperation is greatly appreciated.

President's Page

Don Stiles

The F.A.N. Board of Directors meeting in Stettler, May 12th and 13th, was very successful. Those who were non-directors enjoyed a field trip on Saturday, south of Stettler as far as the Rumsey Natural Area, with Lloyd Lohr as leader. Lloyd always makes his trips interesting by adding the human history of the area.

Saturday evening we were treated to a potluck supper by the Stettler Club (Buffalo Lake Naturalists), plus a slide show by Charlie Bird. Charlie has now been a resident near the west side of Buffalo Lake for 13 years and has already seen habitat changes, often involving removal of roadside habitat by widening roads.

Sunday's trip was the Ducks Unlimited projects in the vicinity of Buffalo Lake, under the leadership of Jerry Brunen. He showed us a habitat improvement project where Ducks Unlimited has planted legumes to increase nesting habitat for ducks. He also showed us several of the quarter sections of the 2500 acres Ducks Unlimited had purchased outright for duck habitat. We also saw some recent evidence of farmers plowing right up to slough edges thus reducing duck nesting habitat, so the Ducks Unlimited projects are really a counteraction to this trend.

The Alberta Wildlife Viewing Guide was fresh off the press at our Stettler meeting. Member clubs of F.A.N. are being given a chance to sell this attractive book with profits being split between the local clubs and the Alberta Bird Atlas Project.

F.A.N. Members who are not members of local clubs can get this publication for $7.95 at bookstores. It has eye catching maps of 64 of the best spots in the province to watch wildlife, plus a list of 50 of the most wanted wildlife species people would like to see.

By this time many of you will be underway with censusing for the fourth year of the Alberta Bird Atlas Project, and will have participated in the Alberta Bird Atlas day, June 23. F.A. N. has applied for a casino license to raise funds for publishing this book. This is an idea of Albert Brule, our newly hired executive director for the Alberta Bird Atlas Project. It is expected in about 18 months time. Lots of manpower will be required for the two days involved but the rewards should be great.

F.A.N.'s Wildlife Habitat Steward Program Coordinator will have been hired by the time you read this. Response to our ad was good, with over 50 replies, so you can expect a talented person. The job description includes encouraging local clubs to sign up farmers who are retaining habitat. Watch for programs from this person this fall.

Comment

Northern Alberta's Forests Have A Standing Too!

Lochan Bakshi

The following is a slightly modified version of a presentation made to the Alberta-Pacific (AL-PAC) Environment Review Board about the establishment of pulp mills in Northern Alberta. The presentation was made on behalf of the Public Advisory Committees (PAC) of the Environment Council of Alberta (ECA). The author was then the chairman of PAC.

Any development in Alberta must be sustainable over the long term, both environmentally and economically. This is the central thesis of the Alberta Conservation Strategy (ACS) which has just been prepared by the Public Advisory Committees of the Environment Council of Alberta. The ACS defines sustainable development as the management of our resources in such a way that we can fulfill our economic, social, cultural, and aesthetic needs while maintaining the essential ecological processes, biological diversity, and naturally occurring life-support systems of Alberta's environment.

Such sustainable development is not easy to bring about without a selfless dedication to the betterment of our environment. Over the past year, a number of presentations have been made to various PAC committees, and serious concerns have been expressed about the effects of the proposed mills on the air and water quality in northern Alberta. Since the AL-PAC Review Board had already heard these, I emphasized that the people of northern Alberta have a right to clean air and clean water. Their legitimate concerns about the possibility of the mill using northern Alberta's atmosphere and streams as sewers for its waste products, must be taken into account.

Economics and Ecology

The proposed mills will no doubt bring some economic boom to parts of northern Alberta. However, it should be kept in mind that unrestricted economic growth can be devastating to nature. It devours the very resources that sustain it, and if left unchecked, its parasitic nature ultimately kills the host.

We must provide suitable safeguards against possible disasters. There should be put in place emergency response and early warning systems to protect downstream residents against the worst possible scenario. This must have been on the mind of an Athabasca resident when he said to me, "I have no objection to the mill so long as it is located downstream from me!".

It is to be noted that some environmental disasters have brought smiles to the faces of economists. For example, the Exxon-Valdez caused one of the world's greatest environmental disasters; yet some of the economists were quick to point out that it provided thousands of jobs for the cleanup crews!

The proposed mills in northern Alberta will certainly create many new jobs but we must see to it that these jobs are not just for cleanup crews, or that they are not lost following the first round of harvesting.

Athabasca Basin is One Ecosystem

The Review Board's mandate includes "potential impacts on water quality in the Northwest Territories, fisheries, navigable waters, Wood Buffalo National Park, and the potential environmental impacts on Indian Reserve lands as a result of associated timber harvesting practices." But the Board is "not empowered to otherwise consider environmental impacts related to the harvesting of timber for the mill." I find that this exclusion is ecologically unacceptable. Let me elaborate.

The drainage basin of the Athabasca River constitutes ONE large ecosystem. Any new activity in one part will ultimately affect its other parts, especially those situated downstream and downwind from it. For the Review Board to look at just one part of this ecosystem is like a passenger at one end of a boat shouting to another at the other end, "Hey, look, your end of the boat is sinking!"

We do not know what the exact

impacts mixed-wood forest harvesting will be on forest hydrology, nutrient recycling, wildlife habitats, fisheries, and innumerable species of plants and animals that form intricate parts of various food chains. I am deeply concerned about the cumulative effects of the mills on the total drainage area and especially on the Peace and the Athabasca Delta, and on the Wood Buffalo National Park, a World Heritage Site.

I therefore urge the Review Board to recommend to the Government of Alberta that scientific studies of our northern forests must be encouraged -- not just with words but with concrete research funds. At the same time, the Review Board should also recommend the identification of appropriate provincial parks, protected areas, and ecological reserves.

Recycling Paper

The Public Advisory Committees strongly support recycling, and as such, they recommend that the new pulp mills should have the capability of recycling Alberta's used newspapers and magazines. The greater the amount of recycled paper, the lesser will be the number of trees cut down, and therefore smaller will be the impact on the Athabasca ecosystem.

Managing the Forests

The boreal mixed-wood forests consist of evergreen and deciduous trees. Foresters do not have a lot of experience in the management of our boreal mixed-woods. Aspen was often considered a weed tree. We know how to kill it but we do not know how to manage it. In allocating the enormous timber resources of northern Alberta for exploitation, we are in effect undertaking a massive experiment. We are going to learn about the management of our northern mixed-woods as we start using them. It would therefore be wiser if we were to start with a rather smaller experiment.

We should not lose sight of the use of herbicides in the management of forests. Of course, forest managers will promise us that they will use herbicides judiciously but it will be quite a temptation to use them extravagantly. The patent on the herbicide ''Roundup'' expires in 1990, after which just about anyone can manufacture it. This will make it available widely at lower prices, thus making it economically more attractive. This can surely be expected to lead to its wider use in forest management. So proper monitoring of even the forest managers is very critical.

In addition to the above, there are many public concerns about the uses of our mixed-wood forests which must be looked into. In recognizing these, in February 1989, the Public Advisory Committees sent an Emergency Resolution to the Premier and several ministers asking the government to authorize the Environment Council of Alberta to conduct, as soon as possible, comprehensive public hearings on the management of Alberta's northern forests. We have not heard from the government yet, and we request this Review Board to urge the Government of Alberta to authorize the proposed hearings.

Forests and Civilizations

Since two Japanese companies will control two-thirds of all the shares of the proposed pulp mill near Athabasca, it would be worthwihile to take a look at Japan's forests. In 1988, I received the Second Brochure of the International Congress of Ecology to be held in August 1990 in Yokahama, Japan. The brochure cover was illustrated with a beautiful picture of Japan taken from a satellite. Japan is a country about half the size of Alberta, but with over 110 million people. Yet the brochure picture showed nearly 90% of Japan to be covered with lush green forest.

Recently at an International Conference on Environmental Education, I asked a Japanese ecologist how could Japan maintain her green forest cover while enjoying an explosive industrial and economic growth. He replied that Japan does not cut her forests because other countries are prepared to cut theirs to supply her with raw materials! This is not a new policy in Japan. In the 50s and early 60s, my international travels were mostly by boat. At every tropical and subtropical part, I saw huge tree trunks with buttresses, being shipped to Japan. When I visited Japan in 1978, I realized that the practice of importing wood from abroad and careful nurturing of Japanese forests must have gone on for centuries. You cannot have mature healthy forests in just a few decades.

The Middle East was once a great forested area where cedars and other tree grew profusely. It is now a desert. Why? Because of overlogging by people and overgrazing by goats and cattle.

Vast tracts of land in central China and western India were once covered by forests. Today they are dustbowls and deserts produced by overlogging and overgrazing.

Huge forested areas of Sub-Sahel Sahara, Sudan, Egypt and Ethiopia are now deserts due to overlogging and overgrazing.

The tropical rain forests of the Amazon basin are now being destroyed at the rate of one acre ever second. Within five years, the cleared land in Brazil becomes a dust bowl. (You have no doubt see David Suzuki's "Amazonia".) We Canadians are pointing a finger at Brazilians for destroying their forests and for endangering the earth's ecosystems. Brazilians look at us and say: "What we are doing in Brazil is not different from what you are doing to your magnificent forests." Brazilians are right, of course. So let us look at our actions first.

It seems that many of us are bent upon cutting down our forests for the sake of short-sighted economic development just as our ancestors did on various continents. It is high time that we take stock and make sure that history does not repeat itself in northern Alberta. Let us therefore deliberate before we cut down our forests because human history has shown that forests precede civilizations but deserts follow them.

Author's Address:
Professor of Biology, Athabasca University,
Athabasca, Alberta T0G 2R0

Woodland Caribou and Lichens in the Caribou Mountains of Northern Alberta

E. Otto Hohn

The Caribou Mountains are not a mountain range but a plateau which reaches elevations of 3,000 feet, roughly 2,000 feet above the valley of the Peace River to the south. There are areas of permafrost at the highest elevations. Named for its woodland caribou it still maintains a reasonable population of these animals as the following observations show. All were made in June or July in the course of investigations of the local breeding birds and refer to the central area of the plateau about Margaret, Eva and Rock Island lakes. Visits were generally short, about five to seven days, because of the intense prevalence of mosquitos in the periods in question. The area was visited by myself and others, Hohn et al. 1973, (two visits), 1974, 1975, 1976, 1977 and Hohn, unpublished 1979, also by Rodney D. Burns in 1974.

Woodland Caribou at Rock Island Lake

(Photo: E. Otto Hohn)

The many trails of these animals around the smaller lakes are evidence of their former if not their present numbers. The following observations were made in 1973: a doe with calf seen from the air, fishermen at Margaret Lake saw a doe and calf near the lake, while others saw a female with calf on a small lake between Eva and Margaret lakes. In 1974 Burns and I saw a doe with calf which followed the shore of Rock Island Lake and eventually passed our camp. In 1988 I saw a young animal grazing on the Margaret Lake air strip and on the same day my companion and I saw two mature bulls a few km north of Margaret Lake. In 1973 we found a heap of caribou skulls and antlers about 2 m high at Eva Lake. According to the letter from the chief ranger, Alberta Lands and Forests at Fort Vermilion, these had been collected during fire fighting operations.

The animals are perhaps not as common as reported in 1914, (Annual report of the Topographical Surveys Branch) where it is stated that ''In the caribou mountains bear and caribou abound''. Nevertheless the reported data above indicated a substantial population (though black bears were not ''abundant'' in the 70s, (Hohn et al op. cit). This is to be expected since the Caribou Mountains form the largest area of sphagnum moss-black spruce muskeg in Alberta (Atlas of Alberta, 1969). There is some evidence of a winter migration of the caribou to lower areas, for Soper (1964) who worked for two years in Wood Buffalo Park but did not enter the Caribou Mountains, mentions their appearance in that season in the lower lying Alberta Plateau of Wood Buffalo Park (Soper op. cit).

The same author cites lichens and ground mosses as their main diet. Lee et al (1982) in their account of the Vegetation and Flora of the Caribou Mountains list 22 species of lichens and 82 of mosses. The most prominent lichen I noticed in the areas covered by myself were *Cladonia rangiferina* (reindeer moss), *Cladonia mitis, Cladonia coccifera* and *Cetraria nivalis*. Tree lichens are important when ground lichens are difficult for the animals to expose in winter. I did not examine these but according to Vitt et al (1988) the most locally abundant species would be *Usnea alpina, U. hirta* and *Evernia mesomorpha*.

Caribou and Wolf Tracks

Caribou Track

(Photos: E. Otto Hohn)

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Author's Address:
11511 - 78 Avenue, Edmonton, Alberta T6G 0N4.

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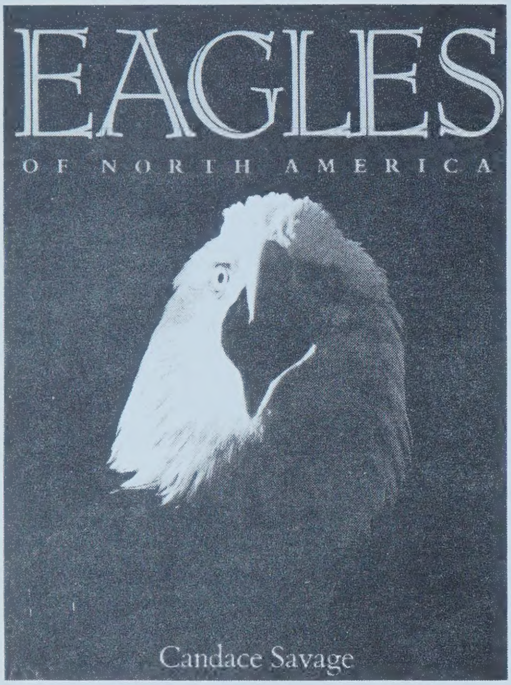
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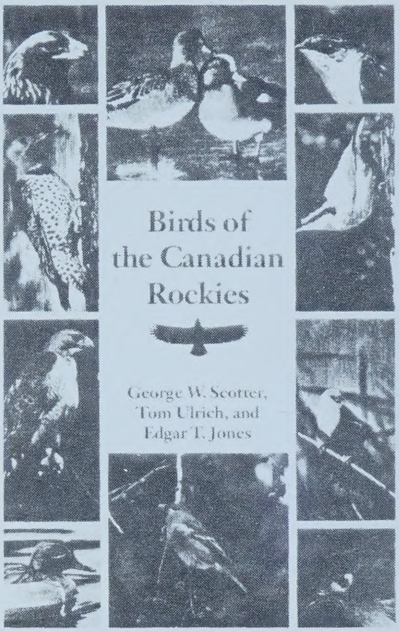
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Whooping Crane Numbers In 1989 Recover From 1988 Setback

E. Kuyt

Whooping Cranes *(Grus americana)* in Wood Buffalo National Park (WBNP), an area containing the only breeding range of this endangered species, in 1987 experienced their most successful year since records were first kept in 1938. The 32 nests found in 1987 and the 25 juveniles which safely reached Texas that fall, are figures that have not yet been surpassed (Kuyt, 1988).

With a total Whooping Crane population of 134 birds in winter 1987-88 (including an estimated 70 subadults, of which 12 were expected to nest for the first time in 1988), expectations were high that all 1987 records would be bettered in 1988. Unfortunately, single birds from two different breeding pairs disappeared at the Aransas National Wildlife Refuge (AMWR) in Texas during the 1987-88 winter. Both surviving adults quickly found new mates, apparently having no difficulty selecting a mate from the abundance of subadults available. The first 1988 Canadian Wildlife Service (CWS) aerial survey over WBNP showed that nesting activities were underway. On 28 April we found the first four nests, all with a single egg. Our April and May surveys located 30 nests, several less than we had expected. One of the previous years' pairs which nests irregularly in the Sass River portion of the breeding range failed to nest. Two pairs nesting in 1987 and earlier years, one in the Klewi River area, the other in the wetlands between Sass and Klewi Rivers also failed to nest. Although paired birds were observed in both territories during the 1988 breeding season, nests were not found. We were able to find the nest of one new breeding pair but the pair's (first) nesting effort failed.

In December 1988, a family group of three birds whose nest site was unknown, arrived at ANWR, with this, a total of 31 breeding pairs was accounted for in 1988.

Aerial surveys by CWS in 1988 determined that of the 30 nests found, 28 eventually contained two eggs each. One egg was taken from a 2-egg nest by an unknown predator and another nest had only a single egg. Nest 21/88 originally had two eggs when found on 8 May but contained three eggs when examined during the 27 May collection of surplus eggs. One of the eggs was that of a Sandhill Crane *(Grus canadensis)*, the first record of that species using a Whooping Crane nest (Kuyt 1989). Two nests were found destroyed on 27 May, the loss having occurred between 16 and 27 May.

On 27 May, 26 surplus Whooping Crane eggs and a Sandhill Crane egg were removed from 27 nests. Eight viable Whooping Crane eggs and the Sandhill Crane egg were transported to the Patuxent Research Center where all nine eggs hatched. One whooper chick died at 4 days of age (pneumonia) and another one at four months (cardiac defect). Eleven of 12 live eggs shipped to Idaho hatched, the twelfth egg contained a dead embryo.

All 28 Whooping Crane eggs left in nests in WBNP were tested for viability and were alive when nests were visited. A late egg in the single egg clutch was replaced by an earlier laid egg, and earlier laid eggs were substituted for late eggs in six nests. During the nest visits, testing revealed six non-viable eggs and these were removed. Six non-viable eggs of 54 eggs tested is not an unusual number: in 1986 we found five non-viable eggs in 51 eggs examined and the same number in a batch of 50 eggs examined in 1987.

Of the 28 potential hatchings, a minimum of 21 chicks hatched as determined by production surveys in June, July and August. As no aerial surveys were made within a week of hatching, it is not known if additional chicks hatched (as is likely) but were taken by predators or died from other causes.

On 3 August, 17 chicks were colour banded and all of them (and an additional unbanded chick) were seen during early September when the young cranes had attained flight stage. By 5 December, 19 juveniles had arrived at ANWR with their parents including 16 of the 17 juveniles colour banded in WBNP and three unbanded ones. Two of the latter were from known nesting pairs (juveniles seen during summer but not banded) and the third unbanded juvenile was the one produced at an unknown nest site referred to above. Peak population at ANWR in winter 1988/89 was 138 birds (T.Stehn, pers. comm.).

As the above missing, banded juvenile (from nest 29/88) was capable of flight when last seen in WBNP on 10 September, it is likely that the bird died during migration. Again the evidence shows that there is little mortality during juvenile whoopers' first fall migration from WBNP.

However, the rest of the population did not fare as well. In addition to juvenile 29/88, 12 older birds failed to show up in the fall at ANWR. This unusually large number included two breeding pairs (one of which had been seen intact in WBNP as late as 9 September 1988), two subadult pairs made up of 3 and 4-yr-old birds expected to breed in 1989 and 8 subadults 1, 2 or 3 years of age. To make matters worse, six Whooping Cranes present at ANWR died or disappeared during the 1988/89 winter. Included in this total were two banded juveniles, a banded adult female (shot out of a family group by a waterfowl hunter near ANWR), two additional breeding adults (from different pairs) and a subadult captured in weakened condition in April. The latter bird was one of two cranes which failed to migrate in spring 1988. It was diagnosed as suffering from avian tuberculosis and died in captivity.

These serious and largely unexplained losses reduced the population to 132 birds in spring of 1989. One of the birds, a banded subadult male, remained at ANWR in summer 1989 as it (and the captive bird which died) had done in 1988, so that 131 birds migrated north.

One of the wintering birds (WBW-O, a subadult hatched in 1986) wintered near Ganado, Texas, 85 km NE of the Aransas refuge. It spent its first winter with Sandhill Cranes near Hydro, Oklahoma and had never been at ANWR. There remains some hope that one or more of the missing subadults may have wintered off the refuge and have remained undetected.

In 1989, spring migration from ANWR was not yet complete by 29 April, a date when in many years egg laying in WBNP had already begun. Of more concern was that four of the Juveniles did not accompany their parent(s) northward. Two of the young birds had lost one of their parents in winter. Early separation of juveniles from their parents at ANWR was also observed in 1988 (T. Stehn, pers. comm.) when three juveniles migrated north in the company of subadults, but not with their parents.

Alonso et al. (1984) indicated that in wintering populations of the Common Crane *Grus grus* in Northeast Spain family cohesion decreases steadily throughout the winter. The juveniles' feeding efficiency increases during the same time accounting for increasing independence. Generally, juveniles leave the winter range after the adults. It remains to be seen if the recently observed behaviour at the Aransas refuge is detrimental to survival of juvenile Whooping Cranes or whether it is a development associated with increasing densities of wintering cranes.

Whooping Crane egg laying in WBNP was underway by 3 May 1989 and by 28 May I had accounted for 29 nest. A 30th nest was found on 6 June and evidence for a 31st nest was provided by T. Stehn (pers. comm.) in fall 1989 when a new breeding pair arrived at ANWR accompanied by a chick.

On 29 May, 15 surplus eggs were removed from WBNP and shipped to the Patuxent Research Center. Five eggs were non-viable when removed from nests and three additional eggs were questionable. The other seven eggs were viable and six of them hatched at Patuxent. Three of these cranes eventually reached flight stage.

The Grays Lake, Idaho foster-parent experiment involving Whooping Crane egg placement in Sandhill Crane nests was discontinued in 1989 partly because of the apparent failure of foster-parent raised whoopers to form pair bonds with each other. Because of the decreased demand for Whooping Crane eggs in 1989, seven 2-egg clutches of live eggs were left intact. Egg substitutions were made at three nests involving new breeding pairs (nests 27/89 and 28/89) or birds (pair 22/89), whose first-ever nest (19/88) had been destroyed before pick-up in 1988. Nest 9/89 (from our worst producing pair) was found destroyed on the day of the egg pick-up and single eggs had been taken, also by unknown predators, from 2-egg clutches in nests 8/89 and 22/89.

Two late nests, each containing a single egg were not examined and quality of eggs is unknown. One nest was found after egg pick-up and the other nest (from a novice pair) was in an inaccessible area. Neither pair produced a chick in 1989.

Of the 30 nests located in WBNP in 1989, seven contained two eggs each a single egg when egg pick-up was complete. Aerial surveys during June and August showed that of the 36 potential hatchings, between 27 and 32 chicks hatched.

A survey on 3 June determined that in nests 2/89 and 4/89 where full clutches had been left, both eggs had hatched. All four chicks were still alive on 6 June and were seen with their parents 300 m from the nests. On the same survey we also saw family 3/89 with both chicks 300 m from the nest and both chicks near nest 4/89. At nest 18/89 we saw a just hatched chick and an egg in the nest. The other three nests (1/89, 12/89, and 19/89) were still being attended by incubating birds, although eggs in 1/89 were overdue by then.

On 22 June evidence of mortality became apparent when adults of families 3/89, 4/89, 12/89, 18/89 and 19/89 were observed with single chicks. Family 2/89 was not located until 31 August: the parents had a single chick with them. The eggs in nest 1/89 failed to hatch. In summary, none of the seven paired cranes with 2-egg clutches managed to raise both young even though the seven pairs included some of our most reliable producers.

A maximum of 15 families (paired adults and single chick) was observed during three aerial surveys in August. The task of identification was difficult and sometimes impossible as no juveniles were colour banded in 1989. Moreover, drying conditions in WBNP had caused families to move well out of their territories, perhaps even into areas where surveying is not normally done.

In 1989, three new nesting pairs were identified in WBNP. One of these, pair 29/89, nested late in the Sass River area and the birds did not raise a chick from the single egg. Novice pair 28/89 was discovered on 22 May near the Nyarling River where, since

1971, only a single pair has nested. The pair's two eggs were non-viable and a single viable egg was substituted during the egg pick-up. The chick was seen as late as 31 August but its fate thereafter is unknown. The third novice pair (27/89) nested in wetlands between Sass and Klewi Rivers. Again neither of its two eggs was viable and a substitution was made. The egg hatched and the family, observed several times near the nest in June and August arrived safely at ANWR in fall 1989.

A colour banded breeding male and proven breeder whose mate disappeared at ANWR, became associated with an unbanded bird during winter and the new pair nested in 1989 close to the male's 1988 nest. The cranes produced a single chick and the family safely reached ANWR in fall 1989.

Although total population counts of Whooping Cranes are not attempted in WBNP, the aerial surveys in 1989 accounted for 114 birds or 87% of the population by the end of August. Five subadults (4 yearlings and one 2-yr-old) spent the summer in Saskatchewan (B. Johns, pers. comm.) and a single yearling did the same in North Dakota. Adding these to the birds observed in WBNP accounts for 120 cranes (not including young of the year) of a spring population of 131 birds or 92% of the population. The remaining estimated 11 birds most likely summered in WBNP or between the Saskatchewan grain belt and WBNP. In 1989 I did not receive reports of Whooping Cranes summering in unusual areas north and west of WBNP as I did in 1988.

In late September I forwarded population estimates to T. Stehn, U.S. Fish & Wildlife Service biologist at AMWR. I suggested that 14 identified families would reach Aransas with up to five of a group of eight identified families less likely to make it. Seven pairs definitely had failed to hatch or raise a young. In actual fact, 13 of the 14 families in the first group reached Aransas as well as five of the second group of eight. The seven failed pairs arrived at ANWR without a chick. These predictions indicate that the location of almost all breeding Whooping Cranes is known as well as the summer location of all but a handful of birds. This again highlights the great importance to Whooping Cranes of Wood Buffalo National Park.

The population of Cranes which reached the Texas coast in fall 1989 was determined to be 146 birds including 20 juveniles (T. Stehn, pers. comm.). This increase of eight birds over the previous fall's arrivals marks the seventh consecutive annual increase for the migratory WBNP-ANWR Whooping Crane flock. Since 1982 this wild population has doubled in size.

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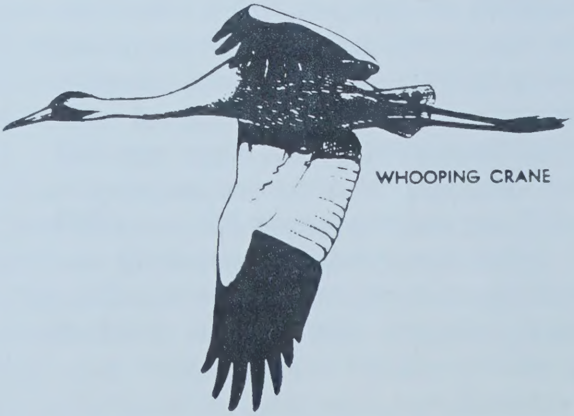
Author's Address:
Canadian Wildlife Service, 4999 -98 Ave., Edmonton,
Alberta T6B 2X3.



Charlie Ellis Remembered...

Ken Larsen

It is said that for most people our characters are a product of our times and environment. For Charles Ellis this was only partially true.

Imagine for a moment the childhood world of Charlie Ellis. The country was essentially empty; the first waves of settlers had yet to reach very far into the countryside in the Lacombe area in 1906. Everything must have seemed new, and open and limitless.

Charlie settled into the life of a farmer in his father's footsteps through the 1920s, and by the mid-1930s had established himself as a successful farmer and rancher. It would have been easy, and even natural for Charlie to settle into this mold, but there was a unique spark of caring and individuality in Charlie and his sister Winnifred that showed through. They became known for their self-sufficiency and individually (sic) in the community. This manifested itself in many ways including their generous help to neighbors and friends. This integrity showed itself most magnificently in their work with wildlife. There are few people who can lay claim to the honor of single-handedly saving a species of wildlife. That Charlie and his sister Winnifred did so while operating a very successful mixed-farming operation is a tribute to more than just their considerable ability to manage their time and resources sucessfully.

Consider the world of the late 1940s and 1950s in rural Alberta. The ethos was growth oriented and materialistic. The natural world existed to serve the whims of mankind and it was mankind's "duty" to subjugate the earth; wildlife conservation was not at the top of the rural Alberta agenda.

In the middle of all this, Charlie noticed that the bluebirds of his youth were no longer common; so he set out a nestbox. Much to Charlie's delight, Tree Swallows moved in; however, shortly afterwards the Tree Swallows were killed by an imported House Sparrow. In Charlie's words: "the war was on!"

We know now, that the secondary cavity nesting birds, like bluebirds and tree swallows were in grave trouble in the early 1950s; but apparently only Charlie Ellis knew it then; certainly he was the only one to do anything about it. Charlie set out nestboxes to help this species, and then he set out more nestboxes, and still more; until he had every fence on his 960 acre farm lined with nestboxes. He and Winnie then started to talk to their neighbors about controlling House Sparrows, the enemy of all our native cavity nesters. Sometimes with the neighbors' help, but more often alone, they set out to control House Sparrows in the neighborhood. After much hard work, Charlie had managed to establish the highest nesting density of Mountain Blue-

The late Charlie Ellis showing a nextbox to young friends, Arctica and Dallas Campbell
(Photo: Myrna Pearman)

birds ever recorded! This pool of Mountain Bluebirds could not have been formed at a more critical time for the species' survival. The Ellis bluebirds formed the nucleus of the recovery of the Mountain Bluebird.

In a fashion typical of Charlie, he refused to accept recognition for his work, so when naturalist writer Kerry Wood wrote of Charlie's achievements, he wrote of "Mr. Bluebird". Mr. Bluebird inspired, through his example and writings of Kerry Wood, the blossoming of the nest-box trail movement throughout Western Canada and then into the United States. The work of the Lane Family in Manitoba and that of other pioneers can all be traced to "Mr. Bluebird."

Recognition of Charlies's achievements came late in his life and they have been considerable, but no recognition can repay the gift Charlie has given to future generations in the form of the Bluebird.

Why did Charlie do it? In his own words: "I did it for the birds."

Reprinted from Ellis Bird Farm Ltd. Newsletter Vol. 4 No. 1.

Author's Address: c/o Box 2980, Lacombe, Alberta
T0C 1S0

News

New Rural Tax System To Benefit Habitat

Alberta's rural environmentalists will welcome the "net income" approach of the Alberta Government's new rural assessment manual.

Officially adopted in 1984 and scheduled for province-wide implementation by the end of the 1990s, this new approach is expected to yield significant conservation benefits because of the way it applies to marginal land.

Tax and grant incentives have historically encouraged owners to increase their acreage under cultivation by

* clearing land of any quality (including muskeg);
* converting native rangeland to "improved" pastureland;
* dredging and straightening streams;
* draining wetlands; and
* backsloping roadside borders (reducing their grade) and removing fencerows to allow for haying and easy movement of equipment.

Often, greater benefit from these marginal areas is realized if they are left in their natural state and used for grazing, livestock shelter, woodlots, or wildlife habitat.

Under the new approach to rural taxation, assessments are based upon soil capacity, tree cover and subsequent anticipated net income, instead of total acreage under cultivation.

Lower tax rates will automatically apply to marginal land because a lower net income is anticipated from them. Owners will no longer be persuaded by tax advantages to clear or alter marginal areas, and they will have more incentive to reserve marginal land for other productive and environmentally-sound uses.

Besides delivering conservation benefits, the new tax manual is designed to make assessments across the province more equitable. In 1989, the County of Athabasca was one of the first areas to be assessed in this manner.

While the system is being applied provincially, other conservation gains (focusing on habitat, wildlife, and soil conservation) are expected from programs such as the North American Waterfowl Management Plan, the Landowner Habitat Retention Program, and the Prairie Farm Rehabilitation Administration (PFRA) initiatives.

Contact: Larry Collins, Department of Municipal Affairs, Assessment Branch, 13th Floor, City Centre, 10055 - 102 Street, Edmonton, Alberta T5J 4L4.

Canadian Nature Federation 1989-90 for Alberta

Joy Finlay, Vice-President, C.N.F.

A vacancy on the C.N.F. Board was created when Morris Flewwelling left in April, 1989. Cliff Wallis was nominated, with supporting letter and background information from the Federation of Alberta Naturalists. The C.N.F. Board confirmed Cliff's appointment in November, and he will serve until May.

My term expires in May, and we need a nomination from Alberta very soon. I have served as Vice-President for Alberta, B.C., and the Yukon; attending about 4 C.N.F. meetings a year, usually in Ottawa, plus as many affiliate meetings as possible.

Wagner Natural Area Environmental Assessment Study

Alberta Transportation and Utilities has proposed a highway interchange and connecting roadway at the junction of Highway 16X (Hwy 16X) and Secondary Highway 794. (794), about 7 kilometers west of Edmonton. Concern about potential effects of the interchange and connecting roadway construction and their usage on the adjacent Wagner Natural Area, the nearby Osborne Acres residential subdivision, and the presently unprotected wetlands habitat on Lot 14 have prompted the department to initiate an Environmental Assessment of the project.

To oversee the environmental assessment, the Wagner Study Advisory Group, called "WAGSAG", was formed. Eight individuals represent these organizations: the Wagner Natural Area Society; the Osborne and Surrounding Area Residents Association; the County of Parkland; Alberta Transportation and Utilities; Alberta Forestry, Lands and Wildlife; and Alberta Environment.

The scientific and public consultation components of the project have been contracted to a study consultant, Spencer Environmental Management Services Ltd., who has engaged experts in areas of hydrology, geology, vegetation, wildlife, acoustics and public involvement. The consultant reports to WAGSAG, which reviews all information, conclusions and recommendations provided by the constultant.

WAGSAG will present recommendations about the project to the Minister of Alberta Transportation and Utilities.

WAGSAG News is published at significant points in the study and it is circulated to all parties interested in or affected by the proposed roadway.

If you are not yet on the mailing list to receive WAGSAG News and notices or meetings but would like to receive information about this project, please call Gary Willson, UMA Engineering Ltd., 486-7645.

From WAGSAG News, No. 2.

Announcements

Jasper Institute of the Canadian Rockies

The Jasper Institute offers short field courses to the general public. This is natural history in depth, experienced in one of the world's great national parks.

Classes are kept small: 15 participants or fewer. Any adult may take part;

there are no academic admission requirements. Each course begins with an introductory talk by the instructor in Jasper townsite, followed by two or more days out and about in the park, looking, listening and learning in the company of a recognized authority on the subject. Academic credit may be available for some courses.

Beaverhill Bird Observatory Banding Summary

The "Ten Year Summary of Bird Banding and Sightings at Beaverhill Lake, 1980-1989" has been compiled by Stefan Jungkind and awaits typing and printing. Depending on degree of financial and printing support from Alberta Fish and Wildlife, Non-Consumptive Wildlife Use Department, all past and present supporters of BBO will receive a complementary copy.

Western Bird Banding Association - BBO August 24 - 26

This year the WBBA is holding it's 1990 annual meeting in association with the Beaverhill Bird Observatory. This 3 day event will bring together banders and birders from both Western Canada and the United States. Activities will include field trips to local natural areas around Edmonton, bird banding demonstrations, presentations of research papers and a banquet on Sat. evening. Mr. Ernie Kuyt of the Canadian Wildlife Service will be providing an update on the Whooping Cranes. Registration and main events are to be held at Franklin's Inn in Sherwood Park. Call Brian Hornby (464-4779, Res.; 468-1062, Off.) or Stefan Jungkind (465-2370).

Fire Research Institute

New Journal: In April, a new quarterly, refereed, scientific journal, the International Journal of Wildland Fire, devoted solely to issues in wildland fire was announced. The Chief Editor, Canadian ecologist Ross Wein, has assembled an international editorial board with representatives from Australia, Brazil, Canada, France, German, South Africa, USA and the USSR. The board is now accepting manuscripts dealing with any issue related to wildland fire science, management or technology. At their current schedule, the first issue will be mailed in the fall of 1990. Subscriptions are $50.00 US. Address questions regarding manuscript submission or subscription to the Journal of Wildland Fire, PO Box 241, Roslyn, Washington, USA 93941-0241.

New International Bibliography of Wildland Fire: The International Bibliography of Wildland Fire contains over 40,000 references to publications concerning all areas of wildland fire including science, management and technology. Articles on urban interface, silviculture remote sensing, fuels, biomass, air quality, ecology, fire history and more are included. Each entry is keyworded to indicate subject matter and region discussed. The bibliography is updated annually, and available on diskette, the bibliography will be published in June, 1990. The bibliography is $60.00 (add $5.00 in Canada and $8.00 elsewhere). Diskettes are $150.00. Write to the Fire Research Institute, PO Box 241, Rosly, Washington, USA 98941-0241 for more information.

New International Directory of Wildland Fire: The International Directory of Wildland Fire contains over 500 pages of names, addresses and telephone numbers. Updated annually, it now includes 4915 managers, 3104 academics, 1162 women in fire, 2434 organizations, 844 vendors and consultants, 1680 educational institutions, 2266 libraries, 177 granting agencies, 451 journals and newsletters involved in research, management or publishing concerning wildland fire. Keywords are included to indicate area of interest. The Directory is $34.50 in paperback and $250.00 on disk. The editors are accepting advertisers. Write to the Fire Research Institute, PO Box 241, Roslyn, Washington, USA 98941-0241 for rate card or to order the directory.

Increasing Trumpeter Swan Population

The trumpeter swan is the largest waterfowl in North America, and certainly one of the most spectacular. But the Rocky Mountain population has shrunk to less than 2000 individuals due to loss of habitat and, in the early part of this century, over-hunting. After the swans were listed as ''rare'' by COSEWIC, a re-introduction program was initiated at Elk Island National Park to help ensure the birds' survival by establishing a new migratory/breeding flock of 10 pairs.

Each summer since 1987, four family groups from Grande Prairie have been relocated to Elk Island. Because trumpeter swans migrate back to the area where they learned to fly, it was expected the cygnets would return to Elk Island the following spring while the adult swans would continue to breed at Grande Prairie. So far the project has shown some success with the return of two cygnets in 1988 and 1989.

Last year, the Friends of Elk Island Society assumed responsibility for the project's fund-raising. With a budget of $25,000 projected to finance aerial surveys, monitoring, education, equipment and other expenses, they are actively seeking donations from individuals and corporations who wish to become involved in this important, Alberta-based conservation program. *Those interested can contact the Friends of Elk Island Society at Site 4, RR 1, Fort Saskatchewan, Alberta T8L 2N7.*

WANTED: Raconteur for the May Species Count--Birds

For three years now the May Bird Count has been without a provincial compiler. Tabular listings for the 1987 and 88 counts have been published in the Alberta Naturalist, but these reports would have had more value if a written commentary had accompanied them, pointing out the unusual/interesting records, comparing the current to previous years' counts, and commenting on changes occurring over time both within and between various count areas.

There may have been some reluctance in the past for a volunteer to come forward because he or she may have felt daunted by the task of compiling results for the entire province. If we can get all of the bugs straightened out on the FAN computer this part of the problem may be solved. A tabular compilation of the provincial results will be prepared at the FAN office and this table would be provided to the person doing the written commentary, thus taking away the need to do the provincial compilation beforehand. The regional compilers could help matters considerably too by making a greater effort to comment on some of the more noteworthy aspects of their counts, both in terms of the current count and in an historical perspective.

With the job of having to assemble the provincial results eliminated, we hope there is someone out there willing to tackle the written commentary. Not only is the job educational, it can have its interesting aspects too. The results of the 1989 count are now ready for processing. The long-term results of the May Count are valuable for many reasons, not the least of which is discerning historical trends in bird populations. There must be a dedicated, knowledgeable birder out there who is willing to ensure that the May Count remains an important research project of FAN. *Anyone interested in taking on this rewarding challenge is encouraged to contact the FAN office in Edmonton (453-8629).*

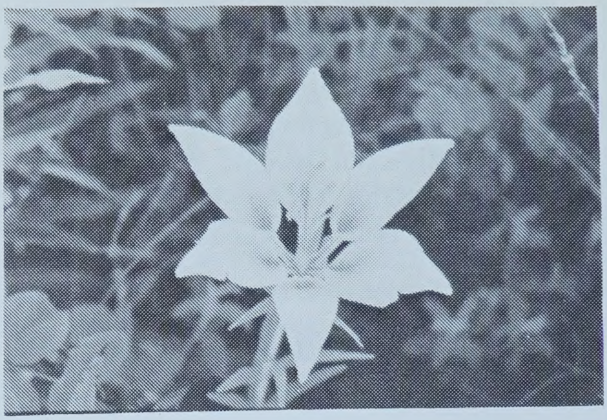
Yellow Immaculate Lily

Jim Lange

On July 1, 1988, I located and photographed 2 Western Wood Lilies that were unusually coloured in that they were yellow with red spots instead of the orange with black. Using a 100mm Macro lens, I took several photos of them thinking that they were just an odd flower that for one reason or another did not bloom normally. This site is located 14.5km East and 2.5km North of Jarvie, Alberta. UTM Grid to the nearest 100 meters is UR208403, (54°29'N 113°46'W). Due to weather and road conditions in the area this past summer, I was unable to check on them. The habitat was the edge of a road going through quite sandy soil and aspen. The plants were growing in the ditch with many other normal colour phase lilies.

Subsequently, on July 3, 1989, I found a lily in the Black Bear Grazing Reserve, adjacent to the Spruce Island Lake Natural Area. In amongst many normal coloured wood lilies was one which was all yellow with no spots. Photos were again taken and the location marked so that it can be monitored. This was growing on pasture land with scattered scrub aspen and some white spruce and jack pine as well. The site was very open with no tree canopy around it. The location of this one is 12.5km East and 3.5km North of Jarvie, Alberta. UTM UR185412 (54°29'N 113°49'W).

On July 9, 1989 another location of these lilies was discovered with three separate plants blooming yellow with red spots, over an area of approximately 75 meters in length. Plants were located on both sides of a main secondary district road in amongst young white spruce on one side of the road, and aspen on the other side.



Wood Lily (Photo: Jim Lange)

The location of the above site is 5km East and 2.5km North of Jarvie, Alberta. UTM UR115405 (54°55'W). Unfortunately upon returning to this site in late summer, it was discovered that the lilies documented in this report, had been dug. With any luck I will continue to monitor these sites in future years. A copy of this letter will be sent to the Provincial Natural Areas people in Alberta, as two of the sites are either in or adjacent to a Natural Area.

Until the evening of January 8, 1990, I was not aware of the significance of the sightings. On that evening the slides were shown at an Edmonton Natural History Club meeting and several of the members indicated that there was a recent article on these flowers in the publication "Blue Jay" by the Saskatchewan Natural History Society dated June 1989.

Author's Address:
13216 - 128 Avenue, Edmonton, Alberta T5L 3H2.

Further Notes on *Wolffia* (Lemnaceae), With the Addition of *W. borealis* to the Alberta Flora

Deirdre E. Griffiths and Graham C.D. Griffiths

G.C.D. Griffiths (1988) reported on the occurence of *Wolffia arrhiza* (sensu Looman 1983) and typical *W. columbiana* in Alberta, and gave the results of chemical water analysis of a beaver pond in the Coyote Lake Natural Area where the latter species is abundant. I.K. Edwards in a letter to the editor (Alberta Naturalist 18(3):112) commented that the chemical information given was inadequate for proper characterization of the water because of the lack of values for total dissolved solids, HC03 and C03. The TDS (inorganic) value of the sample analysed was 81 ppm. Unfortunately no analysis for HC03 and C03 was conducted.

Subsequent to preparation of the 1988 paper, it has come to our attention that a new monograph of the Lemnaceae of the world has been published by Landolt (1986). The Alberta material we recorded as *columbiana* agrees fully with Landolt's diagnosis of *columbiana.* But the status of the taxon from northeastern Alberta and Saskatchewan identified by Looman (1983) as *arrhiza* is disputed. Landolt rejects Looman's identification, and interprets this material as representing a small-celled strain of *columbiana.* According to a letter from Landolt, this judgement was based solely on a photograph of one of Looman's samples. He is anxious to receive (preferably living) material for further study and culturing. Until further studies are conducted, we regard any interpretation of Looman's taxon as tentative and recommend that it be recorded separately from typical (large-celled) *columbiana*. We have seen no Alberta samples with intermediate cell size, so we cannot reject the possibility that two distinct species are involved.

Investigations during 1988 and 1989 have revealed the presence of an additional species, *Wolffia borealis* (new to Alberta and the Canadian prairie provinces) in Elk Island National Park and a few nearby wetlands on the Cooking Lake Moraine (Fig. 2,3). The identification has been confirmed by Landolt. The three taxa now known from Alberta may be distinguished as follows:

1. Thallus boat-shaped (Fig. 1), with exposed upper surface elongate and only slightly convex (± pointed at apex with rising point), strongly convex only below water surface, with numerous stomata .... *W. borealis* (Engelm.) Landolt

- Thallus globular to ovate (Fig. 1), entirely convex (floating low in water with only centre of upper surface exposed), with few (normally less than 10) stomata 2

2. Epidermal cells 40-60 µm, thin-walled .... *W. columbiana* Karsten

- Epidermal cells 10-16 µm, thick-walled .... *W.* sp.(*arrhiza* sensu Looman)

Our records of *Wolffia borealis*, in Elk Island National Park, as well as the adjacent counties of Strathcona (Sites 1,2,3 in Fig. 2) and Lamont (Sites 4 and 5 in Fig. 2) in Alberta, considerably extend the known range of this species northward, thus showing that it is not restricted to areas with relatively mild winters as Landolt (1986) supposed. The species is distributed mainly through the NE United States south to

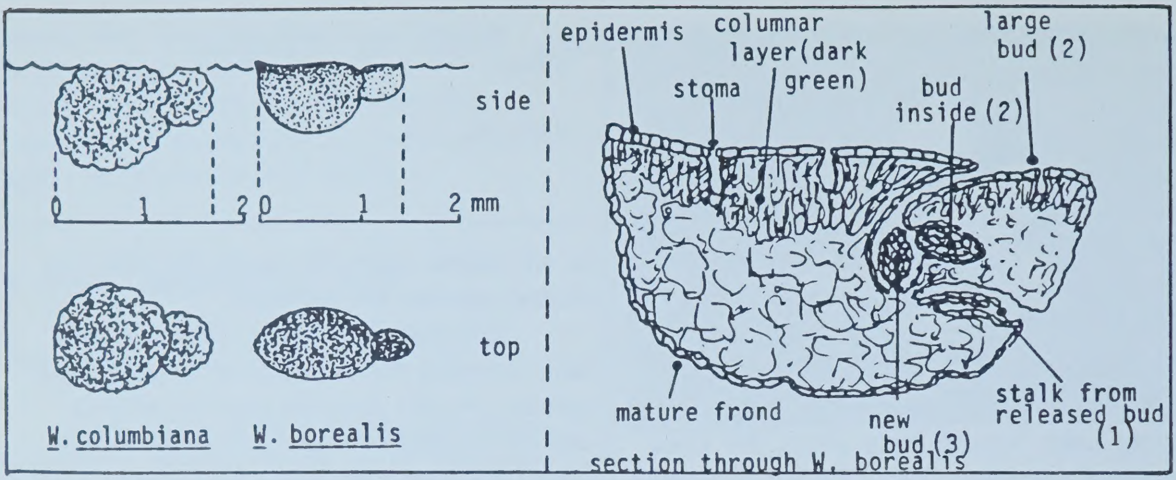

side
0 1 2
0 1 2 mm
top
W. columbiana
W. borealis
epidermis
columnar layer(dark green)
stoma
large bud (2)
bud inside (2)
mature frond
new bud (3)
stalk from released bud (1)
section through W. borealis

Fig. 1 Top and side views, and longitudinal section of *Wolffia* spp. (redrawn from Dore 1957).

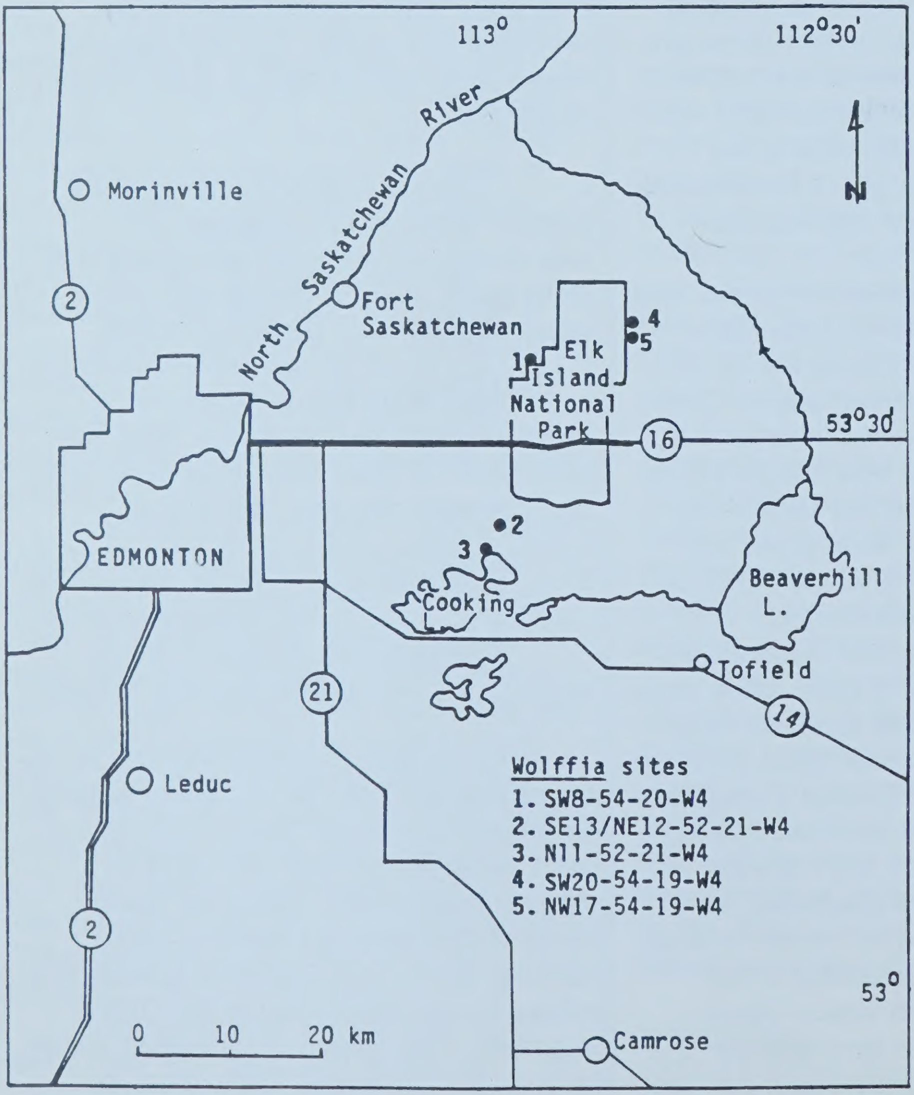

113°
112°30'
N
North Saskatchewan River
Morinville
2
Fort Saskatchewan
Elk Island National Park
1
4
5
16
53°30'
EDMONTON
2
3
Cooking
Beaverhill L.
Tofield
21
14
Wolffia sites
1. SW8-54-20-W4
2. SE13/NE12-52-21-W4
3. N11-52-21-W4
4. SW20-54-19-W4
5. NW17-54-19-W4
Leduc
2
53°
0 10 20 km
Camrose

Fig. 2
Regional map of known sites of *Wolffia borealis* near Elk Island National Park.

Tennessee and north to southern Ontario, with scattered western occurrences in Utah, Colorado, Oregon, Idaho, California (introduced), and southern British Columbia (Landolt 1986; Češka and Češka 1980).

In early September 1988 Parks, Canada supported a preliminary survey of *Wolffia* in Elk Island National Park as it had been observed there at a few sites earlier in the summer. During the survey a total of 56 sites was examined. *Wolffia borealis* was found at 24 of these sites, of which three were just outside the park boundary on outflow wetlands as shown in Fig. 2 and 3. Only at one site within the park, in one of the beaver ponds, were both *Wolffia borealis* and *W. columbiana* observed growing together (in a ratio of approximately 3:1 respectively, Fig. 3). This is, as far as we know, the first recorded occurrence of a mixed population of two *Wolffia* species in Canada west of Ontario. In that province mixed populations of these two species are quite common (Dore 1957).

In Elk Island National Park *Wolffia* was common to abundant at most sites where it occurred. Although all *Wolffia* sites were beaver ponds, by no means did all the beaver ponds examined support *Wolffia,* at least not in 1988. *Wolffia* spp. are not known to grow in lake-sized water bodies (possibly because of wave action), nor in flowing streams (Landolt 1986). At this latitude permanent populations would be unlikely in very shallow wetlands because both *Wolffia borealis* and *W. columbiana* are believed to be unable to survive prolonged temperatures below -8°C.

However, the question remains as to why *Wolffia* does not occur in more of the many apparently suitable wetlands within the Park. Numerous animals undoubtedly transport the fronds from one wetland to another; particularly, beaver, muskrat, waterfowl, herons and shorebirds; and to a lesser extent moose, bison, deer and coyotes. Since the majority of the wetlands are close together, the travel time for birds at least would be short. Although *Wolffia* dries quickly, some fronds must survive and be introduced to many wetlands. Unfortunately, nothing is known of the history of *Wolffia* in Elk Island National Park. There is no mention of it in any survey or research reports before 1988, nor does it appear as identifiable in the Park's photographic file (most of the slides are not sufficiently close-up to show any species in the floating mat other than lesser duckweed, *Lemna turionifera* Landolt (="minor" auctt.)). Thus it cannot be determined if *Wolffia* spp. are recent arrivals that will gradually expand to flourish in more and more wetlands, or whether they have been present for decades, but overlooked, and the current distribution is stable. They could also have been present for a long time in low numbers, with increase associated in some way with the rapid expansion of the beaver population between 1975 and 1985.

Figure 4 shows a typical site in Elk Island National Park where *Wolffia borealis* is common and growing in association with *Ricciocarpus natans, Riccia fluitans, Lemna trisulca, Spirodela polyrhiza* and *Lemna turionifera.* It is clear that the extemely small size of *Wolffia* justifies its common name, "ducksmeal".

Extensive studies by a number of researchers (Landolt 1986) indicate that all *Wolffia* species are sensitive to water chemistry, temperature, nutrients and competition with other floating plants. In this region these would include: lesser duckweed *(Lemna turionifera),* larger duckweed *(Spirodela polyrhiza),* ivy-leaved duckweed *(Lemna trisulca),* the aquatic liverworts *Ricciocarpus natans* and *Riccia fluitans,* and possibly some photosynthetic Protista (eg. Euglenida) and floating algae. Thus, *Wolffia*

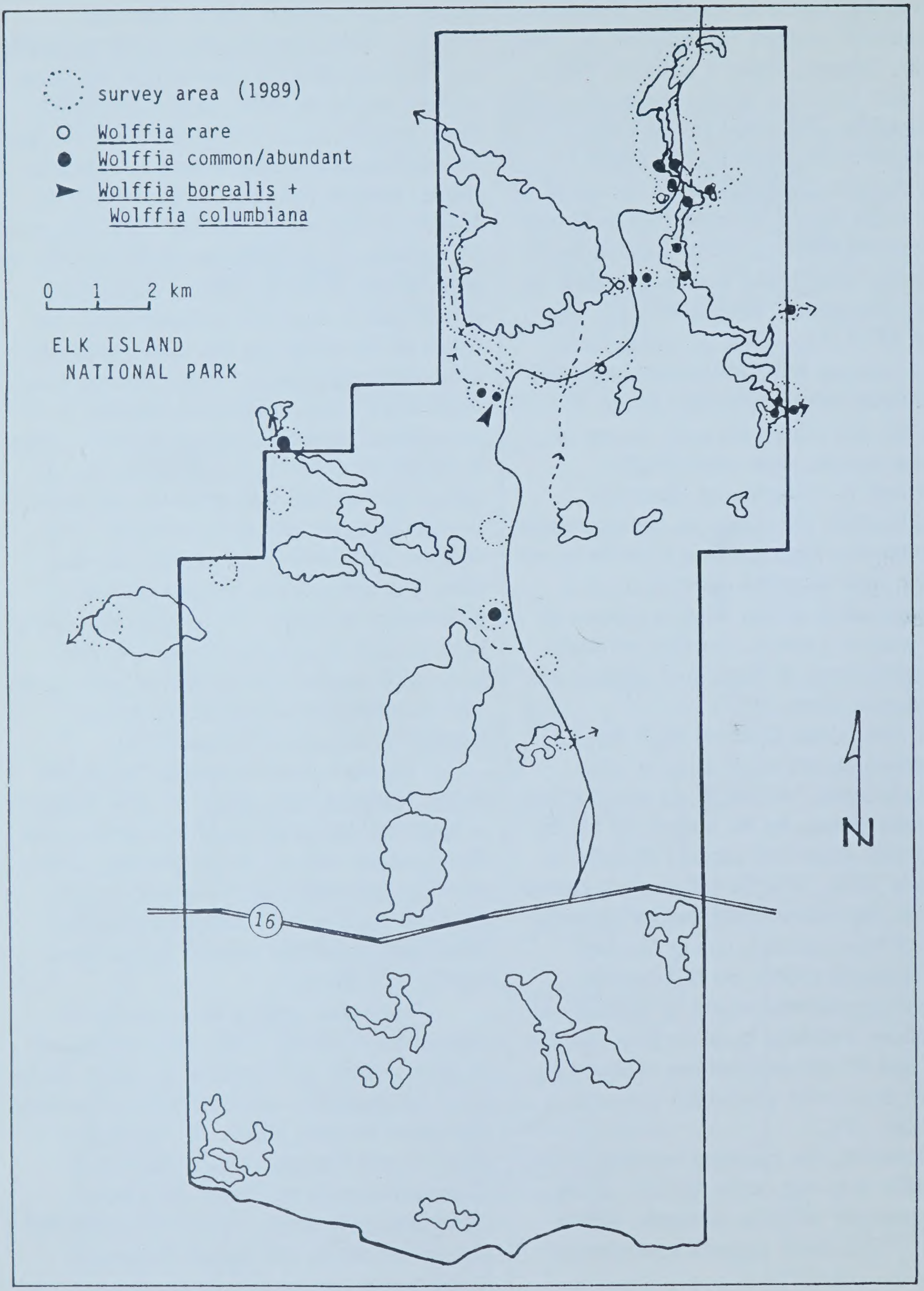

survey area (1989)
○ Wolffia rare
● Wolffia common/abundant
Wolffia borealis + Wolffia columbiana
0 1 2 km
ELK ISLAND NATIONAL PARK
16
N

Fig. 3 Elk Island National Park showing the 1988 survey area and sites of *Wolffia* spp. occurrence.

populations may fluctuate considerably in the same wetland over time. However, in the Coyote Lake Natural Area site (Griffiths 1988), *Wolffia columbiana* populations were similar in 1987 and 1988. Unfortunately, other commitments made it impossible to visit the Elk Island National Park sites again in 1989. Nevertheless, the beaver pond site in the North Cooking Lake Natural Area (Fig. 2, #3) was examined several times in 1989. *Wolffia borealis* was common again, perhaps more so than in 1988. However, it did not occur in flooded fen and cattail beds downstream of the dam, despite several periods of overflow following heavy rain, nor was it found in two other sloughs in the Natural Area, nor along the Cooking Lake shore.

Although *Wolffia* is sensitive to a variety of factors in its habitat, experimental studies have revealed that different clones of the same species vary considerably, yet consistently, in their response to environmental conditions (Landolt 1986). Thus, in order to determine the precise requirements of *Wolffia* spp. in north-central Alberta and account for their apparently sporadic distribution, a combination of field and laboratory studies are needed. At the very least, annual monitoring of the known sites should be undertaken. Additionally, the survey area should be expanded, first in Elk Island National Park, then extended to adjacent areas, and ultimately to the regional and provincial level. Annual monitoring would help determine whether *Wolffia* spp. are long-established or pioneering species in this province. It would also determine the year to year stability of populations. Additionally, a comprehensive investigation of dispersal agents is essential.

Despite their small size, *Wolffia* spp.

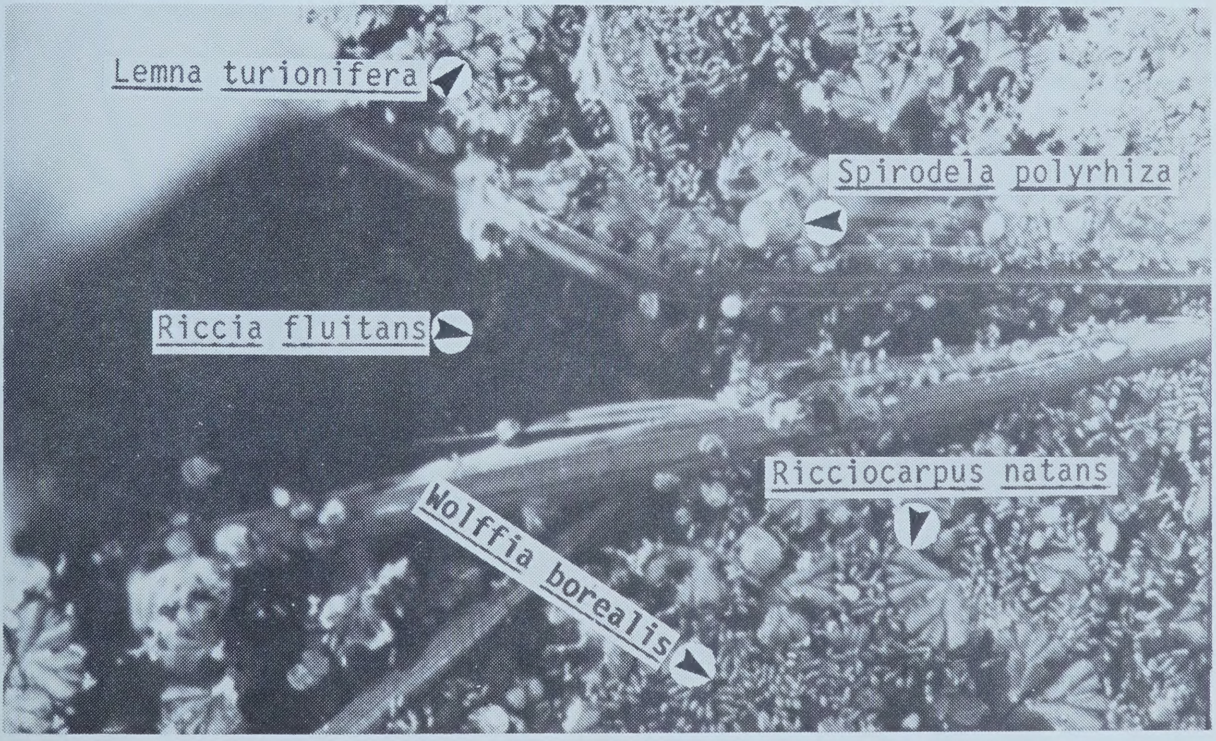


Fig. 4 *Wolffia borealis* growing in association with other floating mat plant species in a beaver pond in Elk Island National Park. (Photo: Deirdre Griffiths)

are fascinating and little understood members of Alberta's flora. When abundant, they may form an important component of the mid- to late summer diet of several duck species (mallard, gadwall, American wigeon, teals, northern shoveler and ring-necked), and the American coot (Martin et al. 1951).

Unfortunately, none of the above mentioned studies can be undertaken unless further funding is made available. Until such time, the authors would be pleased to hear from anyone, especially in Alberta, who has new site records for both *Wolffia borealis* and *W. columbiana*. As much information as possible about the wetland should be included with any such records.

Acknowledgements

We are most grateful to Mr. Dave Pick, Superintendent of Elk Island National Park, for issuing a contract for the 1988 preliminary *Wolffia* survey of the park by D.E. Griffiths. Studies on the fauna and flora of the North Cooking Lake Natural Area during 1989 were conducted under contract with Alberta Forestry, Lands and Wildlife (Natural Areas Program).

The occurrence of *Wolffia* in Elk Island National Park was first drawn to our attention by Mr. Rudi Kroon (Department of Botany, University of Alberta).

Taxonomic opinions and other information in correspondence were provided by Dr. Adolf Češka of the British Columbia Provincial Museum (Victoria) and Dr. Elias Landolt of the Geobotanical Institute of the Rübel Foundation (Zürich, Switzerland).

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Authors' Address:
117 Collingwood Cove, 51551 Range Road
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Novel Bird Species To Look For in Alberta II

J.D. Johnson

Oh the joys of being an editor! In an earlier note (Johnson 1987), I presented a list of novel bird species occurring in Alberta that I had gleaned from various Christmas Bird Count reports. A review of a draft copy of the recently-published "Alberta Wildlife Viewing Guide" provided further additions to this list. The challenge of finding these species should enliven the task of surveying any Alberta Bird Atlas square!

Red-backed Grebe
Ring-bellied Gull
Short-earned Owl - the way we all feel at income tax time
Northern Tree-toed Woodpecker - this poor bird has had more mutilations of its name than any other species
Yellow-headfed Blackbird

Literature Cited
Johnson, J.D. 1987. Novel bird species to look for in Alberta. Alta. Nat. 17(1):15.

Author's Address:
Northern Forestry Centre, 5320 - 122 Street,
Edmonton, Alberta T6H 3S5.

Fisher Visits Bird Feeder

Ross Hodgetts

As a regular supplier of beef fat to woodpeckers on my acreage near Devon on the north bank of the North Saskatchewan River, I was somewhat miffed in mid-January this year when my piece disappeared. Believing it to be a magpie, I put out a chunk that weighed nearly a kilogram and considered the problem solved. When this large piece also disappeared a few days later, I re-assigned the blame to my neighbour's cat. I then wired a third chunk of fat into my feeder so that it could not be removed. Imagine my surprise when the feeder, which was suspended by a wire and rested against the side of a tree four feet off the ground, completely disappeared. The snow was crusty so tracking the villain was not possible and indeed, I began to think that a great horned owl had been the culprit.

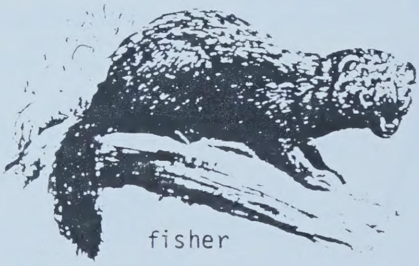
So on January 28, I placed some fat on my deck as a light snow was falling. About 8 pm. the fat disappeared and with flashlight in hand, I could follow a series of animal tracks all around my yard. Clearly fences provided no obstacle to this fellow and the tracks eventually disappeared over the bank of the river.

I phoned Dr. Lu Carbyn, a biologist with the Canadian Wildlife Service, and described the rather oblong paw prints which showed no sign of claws. After a few questions, he pronounced that it was either a lynx or a fisher.

To get to the bottom of it, my son Chris hung a piece of fat on a string just outside a sliding glass door which opened onto our back deck. We then spent one evening armed with a flash camera waiting in vain for our visitor to return. However, on January 31, at 7:40 pm. my wife Daralyn was sitting beside this window when our bandit finally appeared. Standing on his hind legs, his lush black tail supporting him as he grappled with the suspended bait, our thief was a fisher. He was not afraid of us peering out at him and indeed seemed quite curious as to what we were all about.

Cam Finlay, when told about the visitor, remarked that while they were never numerous in the province, they now appear to be quite rare. Documentation of their numbers is available primarily through trapping records. Their apparent decline could therefore reflect changes in trapping practices and may not be real. On the other hand, if a decline has occurred, scientific study of the population size is needed. What aspect of human activity might account for the decrease ?, we should ask. This remarkable, shy creature may be in trouble, and if so, we must find out why.

Author's Address:
Site 15, R.R. 5, Box 49, Edmonton, Alberta T5P 4B7.



Editor's Note: As it turned out, the fisher was quite a traveller. He was enroute for Washington when he escaped from his cage in the belly of an aircraft. When the plane touched down at the Edmonton International Airport, the fisher made his escape and found his way to the "fisher feeder" on Ross' deck.

The fisher was part of a re-introduction program initiated by the Alberta Research Council out of Vegreville. Fishers are being placed in parkland areas near Cooking Lake. This particular fisher was an "extra" on his way to a similar program in Washington state. Unfortunately, Ross never saw the fisher again.

Book Review

Kneehigh Nature: Fall In Alberta; Winter in Alberta

by Dianne Hayley and Pat Wishart
Reviewed by Donna Durham

Recently the cover illustration of two children happily hugging a tree caught my eye. As I read a poem and found a familiar camp song, I thought, "The kids would love this!". I was reading one of two recently published books written to acquaint children with nature's cycles, to help them understand how animals and plants in Alberta change with the seasons. "Fall in Alberta" and "Winter in Alberta", the first two books in the "Knee High Nature" series, were written to help children and adults share in the wonder of nature.

The books begin with an overview of the authors' philosophy; a philosophy that was developed and inspired by leading children and adults in interpretive activities. An introduction to the season and program guidelines prepare the leader to explore nature at first hand or behind the masks of imaginative youngsters. Each book examines selected topics. The topics chosen display important and recognizable characteristics during that season. The biology of each subject is concise and understandable. What the animal or plant looks like, special characteristics and the life cycle are explained. A map of Alberta shows the location of the habitat. Sketches help differentiate between species and help in field identification. The drawings, often featuring little children, help the participant to better understand the material. Frequently asked questions are covered in a section called "Neat Notes", a section that can easily be turned into a trivia game.

"Can you sing this? Can we make this?," was the response from my own enthusiastic audience. Older children, as well as adults, will enjoy reading the poetry and learning the words and music to new songs. Younger children will be amused by the finger plays and simple crafts, many of which can be made with inexpensive materials found around the house. The text, music, plays and fables appeal to such a wide audience that these resource books also provide great entertainment value.

"Fall in Alberta" and "Winter in Alberta" are sturdy books with plastic coated covers and coil spines. The coil spine allows the books to be folded in half or to lie flat at a piano. The books are printed on 8.5 x 11 inch paper and the authors take advantage of the size, using large print and illustrations that can be easily seen by a larger group. Some of the sketches are shown at actual size.

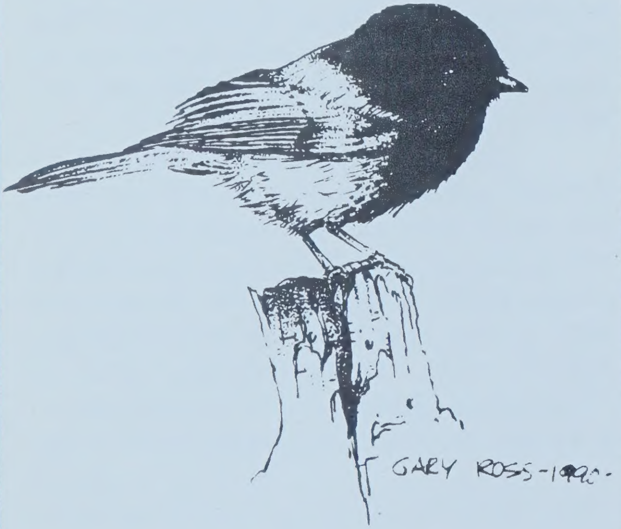
"Fall in Alberta" and "Winter in Alberta" are available in good book stores and nature centres across the province or can be ordered by mail through: Knee High Nature, 52080 Range Road 213, Sherwood Park, Alberta T8G 1B5. The two remaining seasonal books, "Spring in Alberta" and "Summer in Alberta" will be available soon. I, for one, am looking forward to their arrival.

The "BetOr" Chickadee

Betty and Orville Van Slyke

In the fall of 1988, a very strange looking chickadee arrived at our bird feeders. We have been feeding birds on our farm north-west of Red Deer for the past 25 years and this was the first time that one of our avian guests showed up in such unusual attire. It was so unusual, in fact, that we were at a loss as to its positive identification; none of our bird books showed a chickadee with a solid black hood extending down to the middle of its back and breast. We even wondered whether it was a hybrid between a Slate-colored Junco and a Black-capped Chickadee.

Last fall, we were delighted to observe that two of these melanistic chickadees were frequenting our feeders. They continued to feed regularly throughout the winter and behaved just like the rest of the Black-caps. Their spot on the dominance hierarchy seemed to be somewhere in the middle, as they were displaced at their feeding spots about as often as they themselves displaced other individuals.



Now that spring has arrived, their visits are more sporadic. We will be taking the feeders down for the summer, but hope that at least one of them will return in the fall. We have taken the liberty to name these birds the "BetOr" (a combination of Betty and Orville) chickadees.

Author's Address:
R.R. #1, Site 7, Red Deer, Alberta T5N 5E1

Alberta Christmas Bird Counts 1989

Andrew Slater

In Edson, Alberta's first-ever Brambling, a straggler from Siberia, was seen visiting a feeder on count day and lingered in the town well into the new year. Much farther south along the Oldman River near Taber, a single White-fronted Goose was discovered among a flock of Canada Geese and included in the Lethbridge count.

These two additions to the provincial CBC species list were the highlights of the very successful 1989 count. The number of species, 117, was a new high and 27 species were counted in highest-ever numbers.

These were: Horned and Western Grebes, Lesser Scaup, Harlequin Duck, Bald and Golden Eagles, Gray Partridge, White-tailed Ptarmigan, Common Snipe, Mourning Dove, Barred and Great Gray Owls, Downy, Hairy and Pileated Woodpeckers, Gray Jay, Black-billed Magpie, American Crow, Chestnut-backed Chickadee, White-breated Nuthatch, Northern Shrike, Dark-eyed Junco, White-crowned and Harris' Sparrows, Rusty Blackbird, Pine Grosbeak and Pine Siskin.

Perhaps the most notable of these was the Pine Siskin which was found at almost eight times its previous highest number. Pine Grosbeaks were at twice their previous highest and were remarked as being numerous in many parts of the province. Dark-eyed Juncos were also at twice the previous high, while it was the first CBC on which more than one Horned Grebe was found in the Province. Northern Goshawk numbers were the highest for seven years and it was the second good year in succession for Horned Larks.

There were some declines, however. Canada Goose, Mallard and Common

Goldeneye were all down from the previous two years and three of our most irregular birds were at very low numbers: Golden-crowned Kinglets were down by more than half from the previous two years and Red-breasted Nuthatches were at half last year's figure and a quarter from the year before. There were only 26 White-winged Crossbills to be found in the whole province, on just four counts. This compares with 623 in 1988 and 1371 in 1987. The last year with a comparably small wintering population was 1983 (49 on 4 counts).

Great Blue Herons were found on only one count, compared to four counts last year and Pygmy Owls dropped from 18 individuals last year to 3, a much more usual number. No Boreal Owls were found this year, though they had turned up for three years in a row previously. Roaring winds at Waterton Lakes had a lot to do with the fact that Clark's Nutcrackers were at their lowest number since 1973.

Lethbridge, the runaway winner this year, exceeded their previous highest (in 1980) by eleven species. This count has always used an eighty kilometer-radius count circle and draws heavily on participants living in rural areas. Besides the White-fronted Goose, Horned Grebe, Lesser Scaup, Canvasback and Lapland Longspur were new additions.

Wabamun Lake, like Lethbridge, had mild weather on count day and tallied eighteen species of waterfowl, about what they expected. Their Snow Goose was only the second ever recorded on an Alberta CBC (Medicine Hat had one in 1986) and the Black Duck and Oldsquaw were each the third provincial record. Their 48 Lesser Scaup was a new Alberta high, while, for the second year running, they managed to find a Black-backed Woodpecker.

Fort Smith had been included in the report for six years and obtained third place through a steady growth in both number and experience of their observer. Two periods of extremely cold (-48°C) temperatures preceeded count day and reduced the bird activity but, happily, a Willow Ptarmigan was located. Another unique feature of the Fort Smith count was the five kilometers travelled by dog-team!

Banff/Canmore provided good details of the Harris' Sparrow and the Carpodacus finch. Both were new to the count. Their four White-crowned Sparrows is a provincial high. Bow Summit, after setting the Alberta high last year for White-tailed Ptarmigan with 19, went much farther this year and set a new North American high with 48! It was previously 28.

Calgary retained the Turner-Halliday Trophy for the highest number of species,

The counts achieving the greatest increases in the number of species were:

	SPECIES IN 1989	PREVIOUS 5-YEAR AVERAGE	PERCENTAGE IMPROVEMENT
1. Lethbridge	52	30.4	67.8
2. Wabamun Lake	52	43.4	19.8
3. Fort Smith	17	14.4	18.1

for the twelfth successive year, and exceeded 60 species for the fifth successive year. They set two new provincial highs: 7 Harlequin Ducks and 560 Pine Grosbeaks. Claresholm sent in a good description of their female House Finch, which was frequenting a feeder. Two years ago, a similar individual was in Claresholm, doing the same thing!

Edmonton had over one thousand participants for the third year in a row, were only one species short of their highest ever and set a new provincial high for Gray Partridge (586). A Brown Thrasher was present during count week, but very regretfully, could not be found on count day.

This year there was another car-in-a-ditch incident, this time involving one of the participants in the Dickson Dam count, who skidded off the road near his home in Bowden. While waiting for help, he heard a White-throated Sparrow call nearby. It was not in a count area, so is not listed, but increases the number observed in the Province to eight. Grande Prairie was among several very welcome new counts (Devon/Calmar and Tofield were others) and found a Tundra Swan, another third-ever species.

Hinton's 6 Chestnut-backed Chickadees were the third occurrence on an Alberta CBC. The others were at Waterton Lakes in 1979 and 1984. Medicine Hat experienced temperatures down to -15° C and suffered drastic declines in both participants and species. They did, however, manage two new Alberta highs: 1151 Horned Larks and 98 Dark-eyed Juncos. The latter surpassed all previous provincial totals!

An intriguing report was of thirty dark-headed gulls at Rocky Mountain House, which frequented the sewage lagoon, foraged in back alleys and rested on a sandbar in the North Saskatchewan River. This flock was reported to be still present at the beginning of March, an unprecedented over-wintering in Alberta for any kind of gull. Unfortunately, sufficient confirmation could not be obtained to justify a definite identification as to species. Lets just hope for a repeat performance next year!

Red Deer's 344 Pine Siskins was another spectacular new provincial high, and their well-confirmed Rufous-sided Towhee was the second provincial record (the first was in Edmonton in 1978). Vermilion, another welcome new count, produced yet another provincial third record, a Long-eared Owl that stayed on a roadside fencepost in bitter cold for long enough to be sketched.

The Snakes' Head recaptured the provincial Great Gray Owl high from The Wildlife Reserve, but the latter confirmed its long-standing reputation for owls by finding six species. Two Winter Wrens at The Snakes' Head was also something new. This species has occurred in the Province six times before, but always as single birds.

Compilers were generally most co-operative this year in providing supportive details for unusual and rare reports, but I have been a little more ruthless where these were lacking. Three Coopers' Hawks reported without comment from a count with no Goshawks have been listed as Accipiter sp., while an unsupported Loggerhead Shrike report is listed as Shrike sp., due to the difficulty of distinguishing this unlikely species from the Northern Shrike.

I would like to express thanks to compilers for their co-operation in this regard and for submitting almost all reports by the published deadline.

Count Dates, Compilers and Participants

Banff/Canmore Dec. 16, Mike McIvor, Box 144, Banff, AB T0L 0C0., Participants: Heather Dempsey, Peter Duck, Dave Elphinstone, Halle Flygare, Eban Frith, Ellen Gasser, Mona Keith, Reinhold Lang, Louise Mayer, Diane McIvor, Mike McIvor, Harold Mortimer, Julie Mortimer, Rancy Nicols, Sue Nicols, Brian Patton Mike Potter, Bob Smith, Gareth Thomson, Keith Webb, Roger White, Gerry Wilkie.

Bentley Dec. 30, Myrna Pearman. Participants: P. & J. Palmer, The Summers, Vivian Busat, F. Fraser, Murphy/Halbert, M.A. Yakunin, Ruth McPhee, Tom Christison, Lois Galbraith, Jennie Abma. Bea Burles, K. Freeman, H. Gottschlich, L. Stoness, Lloyd Bezo, Donna Croswell, Tom Turnbull, Ken Olson.

Blackfalds Dec. 30, Myrna Pearman. Participants: A. Stolte family.

Bluffton Dec. 30, Murray Mackay, Box 1479, Ponoka, AB T0C 2H0 & Carolyn MacAualy, Box 363, Ponoka, AB T0C 2H0. Participants: Bob Bartholow, Mr. & Mrs. Frank Lind, Mr. & Mrs. Jack Burns, Joe & Margaret Donnelly, Fred Schutz.

Bow Summit Dec. 30, Mike McIvor. Participants: Peter Duck, Diane McIvor, Mike McIvor (Bow Valley Naturalists).

Brule Dec. 27, Carly Deschuymer, General Delivery, Brule, AB T0E 0L0. Participants: Julien, Carly, Leya, Emily & Morgan Deschuymer, Brynn, Andrea, and Erin Gunner, Pearl Kennedy.

Calgary Dec. 17, Ian R. Halladay, 2103 Crocus Road N.W., Calgary, AB T2L 0Z7. Participants: Ingrid Alexander, Des Allen, Liz Allen, Winnie Amos, Ella Arnold, Lorne Arnold, Mairie Babey, Toy Baker, John Bargman, Susan Bayne, Anne-Marie Beckman, Darby Buckley-Jones, Art Campbell, Rod Chisholm, Nancy Cook, Bob Cooper, Pat Cooper, Mary Coughlin, Sheila Cox, Eileen Dann, Elizabeth Dawson-Grove, Daphne Denton, Luke DeWit, Doreen Dickson, Ross Dickson, Morag Dornian, Joel Duncan, Jean Dunn, Roger Dunn, Bitten Ertmoed, Brian Exton, Katie Fisher, Shirley Fraser, Gord Galloway, Barry Giles, Howard Giles, Gottfred, David Gravells, Bob Greggs, Horst Grothman, Ian Halladay (compiler), Art Harris, Michael Harrison, Dorothy Hazlett, Mary Hepher, Peter Hepher, Gerry Herman, Arlene Herrick, Cedric Hitchon, Robin Hitchon, Andrew Holder, Gary Hornbeck, Shirley Hui, Jean Irwin, Bonnie Jacobs, Fred Jacobs, Kate Jones, Steve Kassai, Paul Keogh, Gordon Ker, Estelle Kethler, Allan Kimberley, Terry Korolyk, Gary Lelliot, Corrine Lofthouse, Mac Marshall, Doris Marshall, Jan Marshall, Len Marshall, R. Mason, Belle Mathie, Bob Mathie, Dave Matthews, David McCorquodale, Jean McCullough, Joan McDonald, Malcolm McDonald, John McFaul, Val McGrath, Eileen McLeod, Ruth McRae, Claudette Monette-Brown, Jean Moore, Lorraine Moore, Sherrold Moore, Bill Morf, Nellie Morf, Dorothy Newman, Lynn Newman, Hilda Obermeyer, Aileen Pelzer, Wally Platts, Heidi Plum, Jamie Podlubny, Alaric Posey, Jim Posey, Kay Power, Mike Power, Mike Preston, Mike Rogers, Scott Rogers, Peter Roxburgh, Gwen Simpson, Andrew Slater, Linda Slater, Ena Spalding, Elaine Spitzer, Milt Spitzer, Faye Stead, Don Stiles, Philip Stiles, Bob Storms, Ann Taylor, Denise Thomas, Richard Thomas, John Thompson, Margaret Thompson, Nico Totin, Merlin Trigg, Janice Waite, Jim Washbrook, Grace Webber, Ray Woods.

Cardston Dec. 30, Shirley Sillito, Box 1102, Cardston, AB T0K 0K0.

Claresholm Dec. 30, Grace Norgard, Box 10, Claresholm, AB T0L 0T0. Participants: Hazel Hudson, Jamie Niessen, Jason & Ruth Attwell.

Cremona Dec. 30, Myrna Pearman. Participants: C. Mamo, E. Sumidge.

Devon/Calmar Dec. 26, Karen & Rufus Day, 6408 - 131 Street, Edmonton, AB T6H 3Y3.

Dickson Dam Dec. 30, Myrna Pearman. Participants: J. Allen, D. Hutchison, M McNaughton.

Drayton Valley Dec. 25, Helmut Amelany, P.O. Box 6791, Drayton Valley, AB T0E 0M0.

Eaglesham Jan. 1, Anne Donaldson, Box87, Eaglesham, AB T0H 1H0.

Edmonton Dec. 17, Gerry Lunn, 140 Royal Road, Edmonton, AB T6J 2E7. Participants: Harry & Cathy Acheson, Kim & Dave Allen, Wendy Andrews, Gary Anweiler, Edith Arscott, Margaret Atwood, Nicolas Baas, Steve Blomme, Adam & Arther Bohne, Maryann Borch, Mike & Karen Boyes, Lance Bard, Barry & Alexandra Bayley, Elizabeth Beaubien, James & Barbara Beck, Dusty Becker, Ted Belke, D. Belmonte/S. Jungkind, G. & A. Bembridge, Matt Besko, Barry & Brian Birch, Gene & Marge Brenda, Leslie & Rusty Brown, Jean Burgess, Elaine Butler, Jim Butler, Dough Campbell, Davie Chesterman, Cheryl & Leslie Chetkiewicz, Daniel Chicolne, Jim

Christie, Kim Clark, Dick & Pat Clayton, Dawne Colwell, Barb Condon, Ed & Nita Cooke, Bob Corbett, Tara Corcoran, Beth Cornish, Vince Cottrell, Erin Crisfield, Ray Cromie, Pat Crossley, Mary Cruickshank, Alt Cryderman, Doug & Joan Culbert, Dave Cuthiell, Harry & Betty Daniels, Linda Dawson, Joan Degeer, Brenda Delehanty, Peter Demulder, Tony & Jeanne Deutsch, Tom Diefenbach, David Dodge, Ernie & Berry Dominey, Joyce & Rob Douglas, Dave Ealey, Doug Edgar, Geraint & Timothy Edmunds, Keith Egger, Gordon Elrond, Julie Esselmont, Burn Evans, Ray Falcone, Jim Faragini, Dan Farr, Gaylene Fasenko, Cam & Joy Finlay, Warren & Chris Finlay, Zdenek Fisera, John Folinsbee, Doris Francis, Catherine & Herb Gale, Barb Gaul, Helena Gavin, Graeme Gibson, Ruby Gillespie, Anabelle Gilpen, Jim & Diane Goodwin, Paul Goossen, Karl Grantmyre, Doug Grover, Allan Hacking, Catriona Hamilton, Don & Peggy Hamm, Margaret Hennesay, Les Hicks, Alan Hingston, Lisa Hiruki, Geoff & Michael Holroyd, Doris & Eric Hopkins, Geoff & Jane Hopkinson, Brian Hornby, Harry & Betty Horton, Laurie Hunt, Glen Hvenegaard, Shane & Christine Ingle, Jonothan Jaikaran, Barry Jenkins, Elizabeth, John Robin Bovey, Derek Johnson, Greg Kaminsky, Dave Kelly, David Kenwicki, Gordon Kerr, Dan Kinder, Bruce Kinder, George & Eileen Kinsmen, Neil Klinz, Niels Koehncke, Oksana Kotelko, Doug Krystofiak, Mal Landry, Jim Lange, Sandy Lapointe, Norm & Colleen Larson, Carolyn Lastiwka, Patty Lemke, Elaine Letourneau, Alan & Keri Lewis, Gerry Lunn, George & Harold MacDonald, Chel MacDonald, Cassandra & Tim Mann, Pat Markelevitz, Heather Markham, Sherry Maslyk, Gerard Masse, Susan McDaniel, Colin McIntyre, Gerry McKeating, Bruce McNab, Jamie McNeil, Desiree Merik, Quentin & Cheryl Miciak, Barbara & Anna Migai, Amylee Milke, John Moore, Don Morden, Bruce Morrison, Rick Morse, Pete Moses, David Nadeau, Elena Napora, Wally & Ingrid Nevmann, Ray & Sandra Nichol, Cec Nichols, Barbara Nicholson, John Niski, Pat O'Reilly, Elson Oldrenshaw, Michelle Olsen, Jack & Eleanora Park, Alan & Sandra Paterson, Donelda Patriquin, Don Pattie, Jon Patton, Fern & Don Pluth, Allan Powelson, Errol & Shelly Prasad, Robert Prins, Shirley Przyeoroski, Claire Qualizza, Ray, Teal & Sarinn Rasmussen, B.,D.,L., & N. Reckhow, Larry Reynolds, John & Kathy Rintoul, Jim Romaniuk, France Royer, Mick Safruk, Charlotte Samis, Jim Schieck, Douglas Schmidt, Alf Scott, Michael & Jason Smith, Linda L. Smith, Carol Smith, Judith Smith, Michael Snyder, Sonia Sobon, Krista Stefan, H.T. & S. Stelfox, Robert Stewart, Petra Stubbs, Mark Tanguay, Felicia Taylor, Terry Thormin, Robert Toonen, Karen Trace, Frances Trudel, Drew Tyre, Doug Wahlsten, J.D. Teddy, Eric Wallace, Craig & Judy Wallace, Sandra Lee Webber, Peter Whitehead, Ernie Wieler, Beth Wilins, Kathleen Williams, Bill Wishart, Paul Woodard, Michael & Graham Yeomans.

Edson Mr. J. Marshall, Box 7318, Edson, AB T7E 1V5. Participants: Beta, Gareth & Thomas Pugh, Richard Quinlan, Dorcas Kennedy, Jan Edmonds, Myrna Field, Kevin Field, Cheryll Bissell, Chuck Lacy, Margaret & Robert Hird, Dorothy Bradford, Cory Delisle, Glorai Musson, Heather, Corinne & Paul Marshall.

Elk Island Dec. 31, Geoff Holroyd, Canadian Wildlife Service, 4123 - 122 St., Edmonton, AB. Participants: Peter Achuff, Kay Ball, Elisabeth Beaubien, Barb & Jim Beck, Debra Belmonte, Leslie & Rusty Brown, Jean Burgess, Wendy Calvert, Bob & Jan Carroll, Linda Cheney, Don & Gerry Curthoys, Loney & Lynne Dickson, David Dodge, Jane Dyke, Liz Gordy, Carl Grantmyre, Deirdre & Graham Griffiths, John Hill, Geoff & Michael Holroyd, Peggy Holroyd, Brian Hornby, Jim Lange, Gerry Lunn, Pat Marklevitz, Peter Moses, Johane & Wes Olson, Michelle Olson, Jack Park, Dave Pick, Robert Prins, Joni Renouf, Stacy Renout, Ron & Liz Seale, Carol Smith, Chris Sturko, Cordy Tymstra, Kathy Volpel, Jim Woolford, Nels & Christine Zihrul.

Erskine Dec. 31, Lloyd Lohr, Box 1414, Stettler, AB T0C 2L0. Participants: D., M. & R. Kruger, L. & L. Lohr, M. Lohr, W. Muhlback, M. Walentowitz.

Fort Smith Dec. 26, Jacques Saquet, Box 897, Fort Smith, NWT. X0E 0P0. Participants: Barry Bernhardt, Don & Isabel Brannigan, Cheryl & Lou Comin, Ken & Mary Lynn East, Dan & Judy Frandsen, Cormack & Daniel Gates, Laurel & Ron Graaf, Arnold Labrentz, George & Janet Mercer, Doug A., Dough., Dorothy E., Jeannette L., Shannon C. Robertson, Michael Rosen, Jacques, Jean-Claude Saquet, Brent, Duncan, Wayne Starling.

Grande Prairie Andy Raniseth, 10028 - 87 Ave., Grande Prairie, AB T8V 0B4. Participants: Pauline Swallow, Doreen Cooke, Moira Sheehan, Joan Salvo, Ivan Shukster, Tony Graham, Pauline Freed, Joan Kerr, Margot Hervieux, Andy Raniseth, Thomas Elmslie, Glenn Rogers.

Hinton Dec. 23, Beth MacCallum, 110 Seabolt Drive, Hinton, AB T7V 1K2. Participants: Beth MacCallum, Barry Godsalve, Rick Bonar, Norma Bonar, Rocky Votnes, Ann Bronson, Jack Wright, Joyce Twist, Huel Twist, Gerry Wilde, Peggy Armstrong, Gwen Kudrenecky, Leslie Simmonds, Laura Simmonds, Lorraine Keil, Norm Keil, Brad Armstrong.

Horseshoe Canyon Dec. 16, Mr. Robert W. Storms, #905 - 815 - 14 Avenue S.W., Calgary, AB T2R 0N5. Participants: Stuart Alexander, Mairi Babey, Myrtle Biggs, Gary Clarke, Luke de Wit, Ross Dickson, Olga Droppo, Dick Graham, Louis Guillemette, Michael Hagel, Mike Harrison, Joanne Jamieson, Wayne Smith, Robert Storms, John Thompson, Cleve Wershler, Merrill Wershler, Ray Wershler, Karen McCullough.

Kleskun Dec. 16, Harold Johnston, Box 355, Sexsmith, AB T0H 3C0. Participants: Harold & Dorothy Johnston.

Kneehill Valley Dec. 30, Myrna Pearman. Participants: D. & D. Dickson.

Lacombe Dec. 30, Myrna Pearman. Participants: B. & E. Egbert, H. & E. Warren, Edith Hall, J. & J. Susut, Opal Key, Hart/Carlson Families, V. & C. Haitsma.

Lethbridge Dec. 30, Graeme Greenlee, 2018 - 23 Ave. S., Lethbridge, AB T2K 1K6. Participants: Lloyd Bennett, Anne & Bill Brown, Linda Cerney, Doug & Teresa Dolman, Graeme & Pat Greenlee, Valerie Greenlee, Dick Gwatkin, Bob Hall, Alice & Frank Harper, Olga & Harold Hughes, Kent Isaacson, Betty & George Luco, Ted Lundstad, Lois McKillop, Robbie O'Riordan, Doris Rhodes, Alan Roberts, Katharine & Frank Russell, Liz Savoy, Mary Thomson, Jan VanderGaast, Doug Walker, Jessica Wilkinson, Joyce & Paul Wilkinson.

Medicine Hat Dec. 17, Rob Gardner, 548 - 11 Street SE, Medicine Hat, AB T1A 1T3.

Pine Lake Dec. 30, Myrna Pearman. Participant: Munro Underwoods.

Ponoka Dec. 30, D. Murray Mackay & Carolyn Macaulay, Box 1479, Ponoka, AB T0C 2H0. Participants: Mildred Lyons, Paul Smith, Mackay family, David Street, Frank Bednar family, Dave Bartley, Tony Vandenberg family, Mr. & Mrs. Vince Thacker, Geo. & Vivian McCaughey, Mr. & Mrs. Q. Fate, Leon Scott family, Mr. & Mrs. Herb Eilenstien, Jerry & Betty McMillan, the Heidt family, Mr. & Mrs. Ken Tebb, Tim Schofer family, Mr. & Mrs. Eric Koke, Shirley Clements, Mr. & Mrs. N. Ferlin, Mr. & Mrs. Len Cline, Kathryn Love, Harodl & Fran Lamney, Whitney family, Bob & Olive Welsh, Mr. & Mrs. Garbutt, Mr. & Mrs. E. Hageman, Mr. & Mrs. Marv Morrow, Mr. & Mrs. Jim Smith, Mr. & Mrs. Rowland, Mr. & Mrs. Keith Floyd, Mr. & Mrs. Don Scholin, Dianne & Dale Johnson, Mr. & Mrs. R. Lafreniere, Mr. & Mrs. Howard Wilcox, Mr. & Mrs. Larry Lentz, Mr. & Mrs. Art Walcheskie, Art Humting, Roger McMillar, Judy Gier, Mr. & Mrs. Earl Berdine, Mr. & Mrs. Eric Ostergaard, Mr. & Mrs. Ray Vold, Mr. & Mrs. Geo. Debney, Tris Taylor, Mr. & Mrs. Les Bosenburg, Hugh & Marg Jones, Peter Managhen, Mr. Mrs. Wiesmeuller, Tony Carter & son, Merv Mattern, Alice Lewis, Matt Hyink family, Mr. Mrs. Scotty Nichols, Mr. & Mrs. Don Graham, Merle Jones, Bill Chorney, Mr. & Mrs. Allister McKenzie, Mr. & Mrs. Niel Macaulay, Mr. & Mrs. Bob Ross, Andy Murphy.

Prairie Oasis Dec. 27, Joan McDonald, 91 Range Way N.W., Calgary, AB T3G 1H6. Participants: Ross Dickson, Joan McDonald, Malcolm McDonald.

Raven Dec. 30, Myrna Pearman. C. & G. Kelly.

Red Deer Dec. 30, Myrna Pearman & Tom Pierce, P.O. Box 127, Sylvan Lake, AB T0M 1Z0. Participants: Rod Trentham, D. Kafara/D. Jones, G. Cunningham (2), Findlay family (5), I. & A. Jones, E. & M Glabais, Keith Kline, J. & L. Newnham, F. Schutz/M. O'Riordan, J. Malinic, A. Morrell, Ryan Best, Marie Pierce, K. & B. Steele, M. Flewwelling/ K. Swainson, D. Hazlett/M. Coughlin, Peggy Anderson, S. & D. Murray, Ray Allen/Roger Packham, Eileen Dubois, Campbell/Pearman family (6), Junior F. Wardens (12), Anna Robertson, J. Robertson/W. Martindale/ H. Smith, R. & R. Bjorge, Coleen Meldrum, Ione Napper, K. & M. Wood, M. & D. McNaughton, Michael O'Brien, Minnie Cunningham, Eleanor Gillert, Brian Demaree, Germaine Maga, Marion Everson, Ted Johnson, A. & M. Taylor, E. Wilbert, H. & G. Lembicz, G. Galany, G. MacKenzie.

Rimbey Dec. 30, Myrna Pearman. Participants: E. & M. Eadie, R. & M. Burrows, D. McFadyen.

Rocky Mountain House Dec. 30, Eldon Burns, Box 388, Rocky Mountain House, AB T0M 1T0. Participants: Greg Anderson, Hazel Anderson, Mrs. Bob Anger, Dale Aubuchon, Suzanne Benoit, John Bitoni, Art Bott, Doreen Broska, Rosemary Brown, Eldon Burns, Mrs. Sally Bugbee, Ed & Stacy Burns, Brian Burrington, Mr. & Mrs. F. Chevallier, Marilyn Christiansen, Merrel V. Dahlgren, Donna Dahms, Bertha Dille, J. & A. Edgerton, John Elliot, Anne Emery, Dale Eslinger, Fred Fleming, Dennis Frisky, Anna Gilchrist, Dr. Tim Grier, Gene Grosso, Ray Grosso, Hazel Hamilton, Mr. & Mrs. Max Hansel, Bud Hay, Joyce Hayduk, E. Holbeck, Mr. & Mrs. B. Jacklin, Phyllis Jarvin, Marj Jensen, Mrs. Jill Jutti, Henry & Lola Kraft, Ron Lakie, Letha Letcher, Kim Livingston, Giselle Luzon, Connie Madson, Bill Martin, Rob McDonald, Marion McEwan, Karen &

Robert McMeekin, Lorraine McNutt, Terri Merrigan, Mr. & Mrs. D. Meston, Alf Morrish, Joyce Pengally, Carol & Ole Peterson, Joyce Polvi, Shirley Raymont, Doreen Rew, Bob & Phyllis Rhein, Doris Rodtka, Vickie Sanel, Robert Spoor, Patsy Rodtka, Darrell Smith, Svend Strom, J. & M. Sutherland, Cora Walton, Norman Wandler, Ken Woolard.

St. Paul Dec. 31, Blair Rippin, Box 1836, St. Paul, AB T0A 3A0.

The Snakes' Head Dec. 23, Doug Collister, 3428 Lane Cres. S.W., Calgary, AB TD3E 5X2. Participants: Brian Bailey, Art Campbell, Luke deWit, Ross Dickson, Joel Duncan, Rodger Dunn, Eileen Dunn, Jeff Gottfred, Angela Gottfred, Bob Greggs, Darrell Hutchinson, Gordon Kerr, Ed Mah-Lim, Dave McCorquodale, Joan McDonald, Malcolm McDonald, John McFaul, James Posey, Dave Prescott, John Riddell, Andrew Slater, Wayne Smith, Don Stiles, Bob Storms, Richard Thomas, Rick Welton, Merrill Wershler, Ray Wershler.

Stettler Dec. 17, Lloyd Lohr, Box 1414, Stettler, AB T0C 2L0. Participants: J. Burrell, H. & N. Charles, B. Clarke, N. Dean, T. Graft, E. Gross, G. & W. Hewlett, A. Johnson, E. Kirtley, M. & R. Kruger, R. Lehman, L. Lohr, H. Peterson, M. Simon, B. Smith, M. Walentowitz.

Sylvan Lake Dec. 30, Myrna Pearman. Participants: M. Pijeau, M. Pearman, S. & B. Beck, H. Sjare.

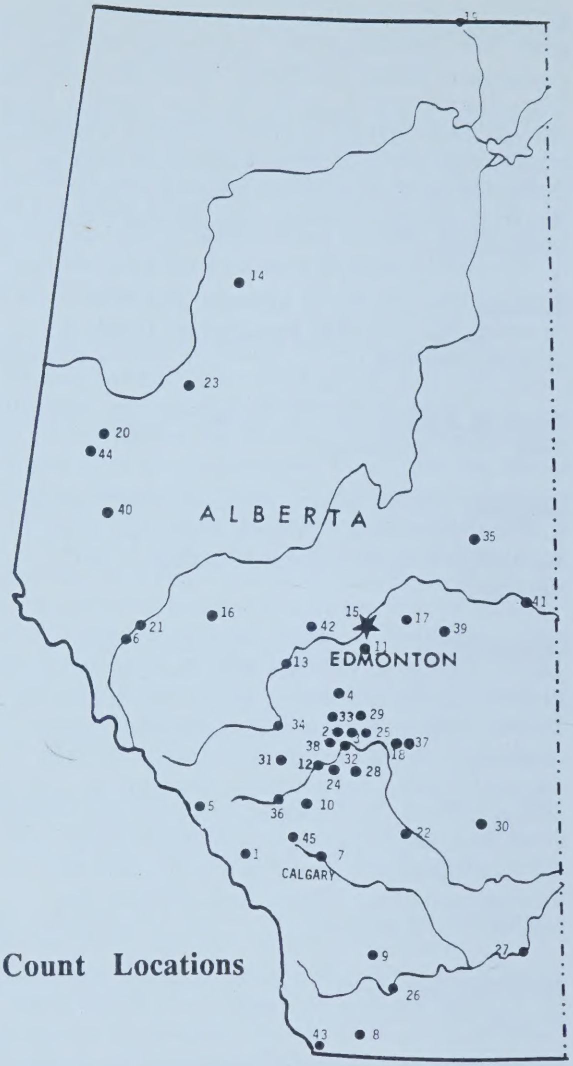
Tofield Dec. 30, Roy Fairweather, R.R. 2, Tofield, AB T0B 4J0.

Trapline Dec. 16, Gavin & Ellen Craig, R.R. 1, Wembley, AB T0H 3S0.

Vermilion Dec. 17, Iris Davies, Box 93, Dewberry, AB T0B 1G0.

Wabamun Lake Jan. 1, Alan Hingston, 53 Wakefield Blvd., St. Albert, AB T8N 3G1. Participants: Dave & Kim Allan, Barb & Jim Beck, George Cheeseman, Kim Clarke, Dick & Pat Clayton, Dave Cuthiell, Peter Demulder, Alan Hingston, Wes Hochachka, Stefan Jungkind, Jim Lange, Colleen & Norm Larsen, Elaine Letourneau, Pat Marklevitz, Dave Nadeau, Harold Pankratz, Alf Scott, Terry Thormin.

Waterton Lakes Jan. 6, Teresa Dolman, 37 Carleton Road, Lethbridge, AB T1K 3X4. Participants: Lloyd Bennett, Andrew Bosma, Linda Cuney, Teresa & Doug Dolman, Graeme Greenlee, Charlene Haley, Kent Isaacson, Dan Lee, Jennifer & Lynn Mather, Janet Mather, Dan Paulson, Peggy Prato, Beth Russell, Shirley Sillito, Janice & Fraser Smith, Thys VanderGaast, Jay VanderGaast.



Count Locations

Wembley Dec. 17, Gavin & Ellen Craig, R.R. 1, Wembley, AB T0H 3S0.

Wildlife Reserve Dec. 30, Jamey Podlubney, 4520 Bulyea Road N.W., Calgary, AB T2L 2H3. Participants: Mairi Babey, Art Campbell, Doug Collister, Luke deWit, Ross Dickson, Olga Droppo, Joel Duncan, Roger Dunn, Angela Gottfred, Jeff Gottfred, Bob Greggs, Horst Grothman, Louis Guillemette, Ian Halladay, Michael Harrison, Frank Hennessey, Doreen Higgin, Clay Hunt, Joanne Jamieson, Kate Jones, Gordon Kerr, Terry Korolyk, Dave McCorquodale, Karen McCullough, John McFaul, May Parker, Jamey Podlubney, Alario Posey, Gillian Posey, Jim Posey, John Riddell, Gwen Simpson, Wayne Smith, Don Stiles, Bob Storms, Jim Washbrook, Cleve Wershler, Merril Wershler, Roy Wershler, Ray Woods, Richard Wyman.

Christmas Count Coverage And Weather Conditions

MAP NO.	COUNT NAME	KMS BY VEHICLE	KMS ON FOOT/SKIS	HOURS VEHICLE	HOURS ON FOOT/SKIS	WATCH HRS. FEEDERS/ OWLING	MAX TEMP DEG CELC	MIN TEMP DEG CELC	MAX WINDSP. KMH	MIN WINDSP. KMH	MAX DEPTH SNOW CMS	MIN DEPTH SNOW CMS
1.	Banff/Canmore	199	86.5	12	56	28	-8	-16	-8	0	25	10
2.	Bentley	124	12	7	5.75	57.5	14	-3	0	0	14	2
3.	Blackfalds					1	5	-3	0	0	25	0
4.	Bluffton	15	4	2	6		2	0	0	0	6	2
5.	Bow Summit	67	17	1.5	11		-6	-10	12	0	84	73.5
6.	Brule	20	10	0.5	3.5	2	8	4	5	0	10	0
7.	Calgary	651	227	38	146	250	-10	-12	26	6	24	0
8.	Cardston	170	5	5	3		2	-7	44	7	19	0
9.	Claresholm	225	6	13	2	1	2	-8	25	5	1	0.5
10.	Cremona		5		6		5	-3	0	0	25	0
11.	Devon/Calmar											
12.	Dickson Dam	37	7	2	6	1	5	-3	0	0	25	0
13.	Drayton Valley	200	4	7	2	3		3	0	0	10	2
14.	Eaglesham						2	-6	0	0	7	5
15.	Edmonton	1377.5	688	120	385	1388	-12	-25	11	11	7	0
16.	Edson	236	52	14	28	19	5	0	10	0	8	0
17.	Elk Island	238	102	20	69	7	0	-5	30	0	8	0
18.	Erskine	142	5.6	8.5	4	4	4	-5	25	5	15	5
19.	Fort Smith	94	71	6.5	30.5		-17	-20	5	0	60	45
20.	Grande Prairie	546	13	29.5	8.5		-9	-26	20	0	6	2
21.	Hinton	272	14.5	20	7	10.5	6	1	30	0	5	0
22.	Horseshoe Canyon	606	85.5	26.75	40		-2	-9	32	0	8	3
23.	Kleskun	104	1.5	4	1	3	-6	-6	0	0	10	0
24.	Kneehill Valley	20	4	0.75	3	4	5	-3	0	0	25	0
25.	Lacombe	90	12	6.5	4.75	19.5	4	-2	1	0	10	5
26.	Lethbridge	450	145	39	96	1	3	-9	30	15	3	3
27.	Medicine Hat	437	75	25	36	19	-15	-15			20	20
28.	Pine Lake		3.5		2	4	5	-3	0	0	25	0
29.	Ponoka	232	40	13	12	230	2	-5	0	0	7	1
30.	Prairie Oasis	115.5	2.5	5.5	1.5		5	2	10	5	5	0
31.	Raven	55	2	2	0.5		5	-3	0	0	25	0
32.	Red Deer	125	145	9.85	53.75	106.5	5	-3	0	0	15	1
33.	Rimbey					6.25	5	-3	0	0	25	0
34.	Rocky Mtn. House											
35.	St. Paul	472	24	62	9.5		-2	-4	30	15	20	15
36.	Snakes Head	899	114	46.25	66	4	8	0	8	0	30	20
37.	Stettler	113.5	11	9.5	5	20	-14	-15	5	2	30	15
38.	Sylvan Lake	16	3	1	2	6	5	-3	0	0	25	0
39.	Tofield	594	27	34	6	10	2	0	8	0	10	0
40.	Trapline	105		7			-6	-6	10	5	5	0
41.	Vermilion			68.5	7	9	-30	-30	0	0	0	0
42.	Wabamun Lake	693	66	36.5	30	8	5	-2	20	0	10	0
43.	Waterton Lakes	95	41	15	17	3	5	3	120	80	50	0
44.	Wembley	178		6.5			-16	20	5	12	0	8
45.	Wildlife Reserve	1184	198	52	106	7	1	-3	13	0	26	8

Alberta Christmas Bird Counts 1989

LOCALITY SPECIES	BANFF/ CANMORE	BENTLEY	BLACKFALDS	BLUFFTON	BOW SUMMIT	BRULE	CALGARY	CARDSTON	CLARESHOLM	CREMONA	DEVON/ CALMAR	DICKSON DAM
Canada Goose	2	3					729					
Mallard	679						12804					80
Common Goldeneye	163						373					2
Common Merganser	4						69					
Bald Eagle	1	3					6					1
N. Goshawk		2					2					
Rough-legged Hawk							4	1	7		1	
Golden Eagle									6			
Merlin		1					14		1		3	
Gray Partridge		54	12	12			181	7	92		29	4
Ring-necked Pheasant		46					15	3	1		5	
Spruce Grouse								1		1		
Ruffed Grouse		3		10		1	3				3	
Sharp-tailed Grouse		2					8		4			
Rock Dove		87					584	43	233		137	7
Great Horned Owl		3					6	2	3		3	3
Snowy Owl		5					1				2	
Short-eared Owl							6	1				
Belted Kingfisher												
Downy Woodpecker	15	17	2	11		2	50	1	6		14	5
Hairy Woodpecker	11	9		14		2	17	2	3		13	2
Three-T. Woodpecker	5						1					
N. Flicker	1	2					7	1	1			
Pileated Woodpecker	1	1	1	1		1					2	
Horned Lark												
Gray Jay	51			8	5					6		
Blue Jay	2	57	2	26		6	37		1	2	64	7
Bl. Billed Magpie	229	50	8	14		6	1419	19	105		174	7
Am. Crow	11	2					41					
C. Raven	147	151		4	6	1	65		7		9	5
Bl. Capped Chickadee	215	133	8	92		19	881	10	20	6	209	40
Boreal Chickadee	72			4	3		12			4	11	12
Red-br. Nuthatch	37						5				2	
White-br. Nuthatch	23	82		6			42				11	4
Brown Creeper	13						11					
Am. Dipper	38				2		2					
Golden-cr. Kinglet	15						25					
Bohemian Waxwing	209	1				8	13181		10		129	1
Northern Shrike							6	1			1	
European Starling	13	21					419	1	12		10	
Dark-eyed Junco	13						15					
Snow Bunting	26	3		200			3001					
Pine Grosbeak	192	14		35			560		12		15	
C. Redpoll	4	248	2	112			552	1	116			75
Hoary Redpoll		36		10								
Pine Siskin	2						93					1
Evening Grosbeak	129	146		33			11				52	10
House Sparrow	114	360	30	26		16	1613	639	380		223	
Total Species	45	31	8	18	6	9	63	17	22	5	28	18
Total Individuals	2698	1550	65	618	70	61	36940	862	1328	19	1217	266
Total Observers	22	21	7	8	3	9	131	1	5	2	20	3

Alberta Christmas Bird Counts 1989

LOCALITY SPECIES	DRAYTON VALLEY	EAGLE-SHAM	EDMONTON	EDSON	ELK ISLAND	ERSKINE	FORT SMITH	GRANDE PRAIRIE	HINTON	HORSESHOE CANYON	KLESKUN	KNEEHILL VALLEY
Canada Goose			350					1				
Mallard			4306					19		3		
Common Goldeneye	52		41						3			
Common Merganser	2											
Bald Eagle	1		1							1		
N. Goshawk	6	1										
Northern Goshawk	2		6		4		2	1		4		
Rough-legged Hawk			5					8			2	
Merlin			19		1							
Gray Partridge			586					33		62		18
Ring-necked Pheasant			76		1					31		1
Spruce Grouse	4				1	3			1			
Ruffed Grouse	5		32	17	25		2		5		2	1
Sharp-tailed Grouse	21		9					30				
Rock Dove			3636	121	89	29		167	8	250		
Great Horned Owl			28		4	2	2	1		9		
Snowy Owl			3					2		2		
Great Gray Owl				2	3			1	1			
Short-eared Owl								2		2		
Downy Woodpecker	2	2	156	22	46	5	2	4	5	10	2	4
Hairy Woodpecker	2	2	78	18	48	2	4	8	6	1	4	
Three-t. Woodpecker			1	1			1			2		
N. Flicker	7		10									
Pileated Woodpecker			19	3	3	1				4		1
Gray Jay	4			93			18	1	15			
Blue Jay	8	4	915	76	80	7		13	9	36	10	3
Bl. Billed Magpie	7	2	2571	55	155	34		170	27	269	2	11
Am. Crow			14		1							
C. Raven	35		15	112	13	5	160	81	242	5	3	
Bl. Capped Chickadee	20	5	3406	215	738	33	46	92	142	166	30	12
Boreal Chickadee			25	19	37		26		10			
Red-br. Nuthatch			20	6	1				3			
White-br. Nuthatch			111	18	26				1			
Brown Creeper					6							
Am. Dipper												
Golden-cr. Kinglet			3		2					15		
Bohemian Waxwing			7372	7	7			131		445		
Northern Shrike	1		9		2	1		1		2		
European Staring			236	25				38				
Dark-eyed Junco			52				3					
Snow Bunting	60		85		7			425		150		
Pine Grosbeak	15	7	357	82	104		24	98	23	84	8	
C. Redpoll	28		494		37	69	8	871		537	20	
Hoary Redpoll			3		4			1		2		
Pine Siskin			168	4	1			2				
Evening Grosbeak	11		251	27	90		13	33	2	3		
House Sparrow			8196	67	146	29		247	35	685		
Total Species	20	7	56	25	29	13	17	30	19	34	9	8
Total Individuals	282	112	33715	1053	1681	217	497	2486	547	3042	81	51
Total Observers	1	1	1050	18	61	8	27	14	18	19	2	2

Alberta Christmas Bird Counts 1989

LOCALITY SPECIES	LACOMBE	LETH-BRIDGE	MEDICINE HAT	PINE LAKE	PONOKA	PRAIRIE OASIS	RAVEN	RED DEER	RIMBEY	ROCKY MTN HOUSE	ST. PAUL	SNAKE'S HEAD
Canada Goose		1883	1031									1
Mallard		1601	110		5	90		393				9
Common Goldeneye		87	106			9		20				
Common Merganser		13	22			2						
Bald Eagle		8	7		3		1	2		1		1
N Goshawk										2	2	1
Rough-legged Hawk		2					3	1				19
Golden Eagle		10				1						2
Merlin	1	3	1		2		1	1				
Gray Partridge		87	13	2	176	12		11	4	2	19	85
Ring-necked Pheasant		47	44		4							
Spruce Grouse										2		
Ruffed Grouse	2				21			7		18	7	21
Sharp-tailed Grouse		12	6			26				1	5	
Rock Dove	115	274	994		455	13		789		24	384	61
Great Horned Owl		3	3		18	1					6	
Snowy Owl		1			3							
Great Gray Owl	1				1		1					8
Short-eared Owl		1	1		6		5					1
Downy Woodpecker	12	21	8	3	35			47	1	49	3	36
Hairy Woodpecker	7	3		2	15			31	1	33	6	10
Three-T. Woodpecker												4
N. Flicker		17	21							2		
Pileated Woodpecker	3			1	5		1	5		3	2	4
Gray Jay							1	2		71	1	84
Blue Jay	37	5	9	2	162		1	209	11	132	40	80
Bl. Billed Magpie	41	312	421	3	294	33	5	344	2	67	150	165
Am. Crow		9	1							10		3
C. Raven	4	2			11			16	3	52	33	190
Bl. Capped Chickadee	98	130	42	13	655		6	686	17	433	245	425
Boreal Chickadee	12				25		4	41		76		154
Red-br. Nuthatch		1	9					1		10		7
White-br. Nuthatch	8	16			24			28		45	7	21
Brown Creeper		1						3		2		5
Am. Dipper												4
Golden-cr. Kinglet			5									29
Bohemian Waxwing		317	277		159			1160	18	6	77	10
Northern Shrike		4		1	4			2			1	7
European Starling		138	547		14			149		5	44	5
Dark-eyed Junco		7	98		6			4		3	1	2
Snow Bunting		1	40			236		140		21	130	777
Pine Grosbeak	20	63	71		81			51	20	201	5	74
C. Redpoll	26	74	357		475	11		260	12	498	26	112
Hoary Redpoll		3			15			4	2	6		
Pine Siskin		1	1		130			344	3	96		
Evening Grosbeak	20		7		164			28	4	199	23	157
House Sparrow	136	503	844		1493	40		580	84	190	964	162
Total Species	17	51	32	9	34	15	11	33	14	36	24	45
Total Individuals	543	6101	6261	28	4473	479	29	5361	182	2285	2181	2776
Total Observers	18	32	27	3	110	3	4	82	5	44	18	31

Alberta Bird Counts 1989

LOCALITY SPECIES	STETTLER	SYLVAN LAKE	TOFIELD	TRAPLINE	VERMILION	WABAMUN LAKE	WATERTON LAKES	WEMBLEY	WILDLIFE RESERVE	TOTAL
Canada Goose						7				4007
Mallard					1	97	2		6	2025
Common Goldeneye						388	14			1258
Common Merganser						4				116
Bald Eagle		1				5		1		44
N. Goshawk			1			1		2	3	35
Rough-legged Hawk	1	1				3		3	4	65
Golden Eagle				1			2			27
Merlin		1	1		2					51
Gray Partridge	6		10			14				1545
Ring-necked Pheasant						2		2		278
Spruce Grouse									1	10
Ruffed Grouse		4	2	2	1	23		13	18	249
Sharp-tailed Grouse		12	1		14	17		25		193
Rock Dove	30	18	215		60	19		25	74	8941
Great Horned Owl	2		1	1		12	2	3	6	124
Snowy Owl								6		25
Great Gray Owl									6	24
Short-eared Owl			1		1			3	1	31
Downy Woodpecker	15	5	11		12	26	2	4	31	702
Hairy Woodpecker	6	7	7		13	25	1	5	16	434
Three-T. Woodpecker				1					5	21
N Flicker								2		64
Pileated Woodpecker	2	2	2			5			7	79
Gray Jay				6		28	3	1	167	565
Blue Jay	27	14	40		20	108		12	64	2338
Bl. Billed Magpie	44	7	274	1	66	158	29	55	218	8023
Am.: Crow						3			3	98
C. Raven	1			5		40	17	10	255	1705
Bl. Capped Chickadee	149	55	291	4	76	574	26	40	631	11134
Boreal Chickadee			1	3		52	4		222	829
Red-br. Nuthatch						3	1		17	123
White-br. Nuthatch		4	3		2	21	3		21	527
Brown Creeper									6	47
Am. Dipper							9		3	58
Golden-cr. Kinglet									5	99
Bohemian Waxwing	12				20		1			23558
Northern Shrike	2		1	1	1	10		4	5	67
European Starling			5		9			8	1	1700
Dark-eyed Junco			1		376		33	6	479	6197
Pine Grosbeak	4		26	6	70	57	5	30	34	2428
C. Redpoll		45	68	75	96	133		1200	356	6998
Hoary Redpoll					4	27			5	122
Pine Siskin	2				3	13		1		865
Evening Grosbeak			72			67		4	1	1557
House Sparrow	360	4	351		242	122		60	170	19111
Total Species	17	16	24	13	23	52	22	27	41	117
Total Individuals	667	181	1387	107	1090	2306	178	1538	2902	130533
Total Observers	19	7	34	2	21	22	20	2	41	1998

Species Recorded On Five Or Fewer Counts

Species	Counts And Numbers
Pied-billed Grebe	Wabamun Lake 1
Horned Grebe	Lethbridge 2; Waterton Lakes 3
Western Grebe	Wabamun Lake 6
Great Blue Heron	Calgary 3
Tundra Swan	Horseshoe Canyon 1
Great White-fronted Goose	Lethbridge 1
Snow Goose	Wabamun Lake 1
Green-winged Teal	Banff/Canmore 7; Calgary 2
American Black Duck	Wabamun Lake 1
Northern Pintail	Calgary 5; Edmonton 1; Lethbridge 5; Prairie Oasis 1
Gadwall	Calgary 6; Wabamun Lake 40
American Wigeon	Calgary 4; Wabamun Lake 53
Canvasback	Grande Prairie 1; Lethbridge 2; Wabamun Lake 1
Redhead	Calgary 2; Wabamun Lake 53
Ring-necked Duck	Wabamun Lake 6
Lesser Scaup	Calgary 3; Edmonton 21; Lethbridge 2; Prairie Oasis 1; Wabamun Lake 48
Harlequin Duck	Calgary 7
Oldsquaw	Wabamun Lake 1
Barrow's Goldeneye	Banff/Canmore 2; Calgary 11
Bufflehead	Calgary 2; Edmonton 3; Wabamun Lake 1
Hooded Merganser	Calgary 2; Prairie Oasis 3; Wabamun Lk.16
Ruddy Duck	Wabamun Lake 9
Northern Harrier	Bentley 1; Grande Prairie 4
Sharp-shinned Hawk	Edmonton 1
Cooper's Hawk	Tofield 2
Accipiter sp.	Ponoka 3
Red-tailed Hawk	Wabamun Lake 1
American Kestrel	Raven 1
Gyrfalcon	Calgary 1; Edmonton 1; Horseshoe Canyon 1
Prairie Falcon	Calgary 2; Cardston 1; Horseshoe Canyon 4; Lethbridge 1
Raptor sp.	Bentley 1; Medicine Hat 1
Willow Ptarmigan	Fort Smith 1
White-tail Ptarmigan	Bow Summit 48
American Coot	Calgary 1; Wabamun Lake 12
Killdeer	Banff/Canmore 4; Calgary 4; Lethbridge 1; Snake's Head 3; Waterton Lakes 1
Common Snipe	Banff/Canmore 5; Snake's Head 1
Gull Sp.	Rocky Mountain House 30
Mourning Dove	Horseshoe Canyon 2; Lethbridge 3
Northern Hawk Owl	Snake's Head 1; Wabamun Lake 1; Wildlife Reserve 1
Northern Pygmy Owl	Snake's Head 1; Trapline 1; Wildlife Reserve 1
Barred Owl	Devon/Calmar 1; Edmonton 1; Wildlife Reserve 1
Long-eared Owl	Vermilion 1
Northern Saw-whet Owl	Bentley 6; Edmonton 3; Wabamun Lake 9
Belted Kingfisher	Calgary 2; Lethbridge 1; Red Deer 1; Snake's Head 2

Black-backed Woodpecker	Rocky Mountain House 1; Wabamun Lake 1
Horned Lark	Cardston 129; Claresholm 307; Horseshoe Canyon 247; Lethbridge 408; Medicine Hat 1151
Steller's Jay	Banff/Canmore 2; Sylvan Lake 1; Waterton Lakes 8; Wembley 1
Clark's Nutcracker	Banff/Canmore 15; Bow Summit 2; Rocky Mountain House 5
Mountain Chickadee	Banff/Canmore 158; Calgary 1; Edmonton 1; Waterton Lakes 11; Wildlife Reserve 19
Ch. backed Chickadee	Hinton 6
Chickadee sp.	Banff/Canmore 49; Bow Summit 4; Hinton 3
Nuthatch sp.	Stettler 4
Winter Wren	Snake's Head 2
Townsend's Solitaire	Banff/Canmore 2; Edmonton 1; Waterton Lakes 1
American Robin	Devon/Calmar 1; Edmonton 5; Lethbridge 2; Ponoka 3
Varied Thrush	Calgary 1; Pine Lake 1
Cedar Waxwing	Edmonton 4; Ponoka 3
Shrike sp.	Edson 1
Ruf.-sided Towhee	Red Deer 1
American Tree Sparrow	Calgary 1; Edmonton 1; Horseshoe Canyon 1; Lethbridge 28; Medicine Hat 12
Song Sparrow	Edmonton 1; Lethbridge 1
White-throated Sparrow	Banff/Canmore 1; Calgary 1; Edmonton 3; Medicine Hat; Wabamun Lake 1
White-crowned Sparrow	Banff/Canmore 4
Harris' Sparrow	Banff/Canmore 1; Calgary 1; Snake's Head 1
Sparrow sp.	Banff/Canmore 2
Lapland Longspur	Lethbridge 2
Red-winged Blackbird	Banff/Canmore1; Lethbridge 2; Rocky Mountain House 1
Rusty Blackbird	Drayton Valley 2; Snake's Head 17; Wildlife Reserve 28
Brewer's Blackbird	Ponoka 3
Common Grackle	Devon/Calmar 1; Edmonton 1
Blackbird sp.	Vermilion 1
Rosy Finch	Edson 1
Purple Finch	Edmonton 3; Rocky Mountain House 5
House Finch	Claresholm 1
Carpodacus sp.	Banff/Canmore 1
Red-winged Crossbill	Banff/Canmore 7; Snake's Head 12; Wildlife Reserve 5
White-winged Crossbill	Calgary 1; Edmonton 1; Fort Smith 11; Rocky Mountain House 13
Redpoll Sp.	Devon/Calmar 92; Eaglesham 90; Edson 60; Fort Smith 25
Brambling	Edson 1

Recent Publications on ALBERTA NATURAL HISTORY

Compiled by David M. Ealey
and Martin K. McNicholl

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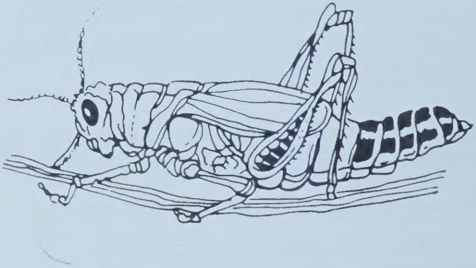

Cover Photo: Nest and eggs of Spotted Sandpiper (**Photo:** Jim R. Salt)

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(c) To foster and assist in the formation of additional natural history clubs and societies in Alberta;
(d) To promote the establishment of natural areas and nature reserves, to conserve and protect species, communities or other features of interest;
(e) To organize, or coordinate, symposia, conferences, field meetings, nature camps, research, and other activities whether of a similar or dissimilar nature;
(f) To provide the naturalists of Alberta with a forum in which questions relating to the conservation of the natural environment may be discussed so that united positions can be developed on them, and to provide the means of translating these positions into appropriate actions.

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DEADLINES for F.A.N. project reports are:

Alberta Christmas Bird Counts, January 30, Andrew Slater, 152 Oakside Circle S.W., Calgary, AB T2V 4H2

May Species Count—Plants, July 15, J. Derek Johnson, Northern Forestry Centre, 5320 - 122 St., Edmonton, AB T6H 3S5; *—Birds and Mammals*, July 15, Don Stiles, 20 Lake Wapta Rise S.E., Calgary, AB T2J 2M9

Compiler cooperation is greatly appreciated.

President's Page

Our September 1,2,3 F.A.N. director's meeting took us to a new part of the province to visit one of F.A.N.'s newest clubs. Special thanks to co-ordinators and field trip leaders: Ruth Kleinbub, Grant Henry, Brad Arner and Fred Corbett. Most of the participants got to see one of Alberta's newest natural areas, Saline Lake by boating across the Athabasca and downstream a few kilometres. Those who missed this trip got to see the Pitcher Plants at a watchable wildlife area. This was a highlight for local club members as these had not been previously spotted. All participants viewed the massive diggings of the Suncor and Syncrude oilsands plants and gained an appreciation of these operations. On Labor Day morning two trips were offered: 1. A plane flight over the Athabasca delta with a landing at Fort Chipweyan, Alberta's oldest settlement (1788), or 2. A jet boat ride up the Clearwater River where the fur traders came from the east to Fort McMurray. A very pleasant long weekend with lots of adventures for everyone.

Another ecological reserve which has recently been designated is the Rumsey Area, an aspen parkland area south of Stettler. This has been proposed for some time and is welcome.

Game ranching was written into law this summer. This is expected to be detrimental to Alberta's wildlife, as there are possible prospects for things like poaching and disease carrying. F.A.N. has developed a position paper on this, thanks to Maryhelen Posey.

Another issue which we will be hearing more about is the bison of Wood Buffalo National Park. A panel has recommended that these bison some of which are affected by brucellosis and tuberculosis, be gradually slaughtered and replaced by disease free bison from other herds.

F.A.N. will be responding to this recommendation as some naturalists question whether (1) this degree of management should be done in national parks, (2) all the bison can be found and (3) this solution will really eradicate the disease. Stay tuned.

Unfortunately, the Wildlife Habitat Steward Program promised in the last issue of the A.N. had to be cancelled when our expected funding fell through.

We have learned recently about the Shell Environmental Fund, a $1 million annual program to help individuals and groups make a positive contribution to the environment. Funding is for projects up to $5000, such as clean up a local park, restore some land for wildlife, or start a recycling project. It is not for conferences, training, or purchase of land. Your local F.A.N. representative will have an application form, or you can get information direct from Shell at 1-800-661-1600.

Kinbrook Marsh - Water Fowl Hotspot

New manmade marsh exemplifies irrigation's decades-old benefits to wildlife.

Clive Schaupmeyer

Irrigation continues to have a major impact on wildlife -- a POSITIVE impact. And Kinbrook Marsh, in the Eastern Irrigation District (EID), is a notable example of what irrigation water can do for wildlife and recreation, while helping economic growth.

Irrigation has had poor and inaccurate press in the past few years. We have been told that water diverted for irrigation is only used by a few thousand farmers for watering parched fields. But nothing could be farther from the truth. During the past few decades irrigation has contributed billions to Alberta's economy, BUT irrigation also produces wildlife, is a major source of tourist income, and is the only source of recreational water in southeastern Alberta. Birdwatchers, anglers, photographers, hunters, sailors, tourists, and more recently wind surfers all benefit from the water diverted for irrigation.

Kinbrook Marsh is a prime example of a productive manmade wetland. The 495-acre Kinbrook Marsh, on the shores of the 60-square-kilometre Lake Newell Reservoir, was the first major wetland to be established under the Co-operative Ventures Program. The agreement, signed in 1987 by Alberta Fish and Wildlife Division, the Eastern Irrigation District (EID), and Ducks Unlimited, combines financial and technical resources of the three agencies specifically for the development of wildlife habitat. (All three agencies, plus local fish and game associations have co-operated for decades on numerous wetland projects -- this agreement strengthens the commitment and co-operation.)

The area that now encompasses Kinbrook Marsh was directly connected to the main body of Lake Newell before the project. The area was therefore an intermittent wetland not conducive to optimal water fowl nesting and survival for two reasons. First, irrigation reservoirs are not filled to capacity in the late fall so that ice will not damage water-control structures. They are filled in the early spring after many ducks have nested in the riparian areas and subsequently many nests in flat, marshy areas may be flooded. Secondly, as water is drawn down for irrigation, and due to evaporation, in late summer protective islands may become connected to the mainland and therefore accessible to land predators.

In order to stabilize water levels in Kinbrook Marsh, and eliminate early-season flooding and summer drying, three dams were constructed between Lake Newell and the marsh. The level of water in adjacent Lake Newell can now fluctuate during the irrigation season, but the depth of water in the marsh is maintained, thus allowing the waterfowl to reproduce at high levels. Water is added to the marsh as required through water-control structures.

Since Kinbrook Marsh was constructed in 1988, Canada Geese appear to have benefited the most, however breeding ducks are definitely on the increase and populations will be very high within another year or two. Redheads, Canvasbacks, Ruddy Ducks, Widgeons, Gadwalls, Mallards, Pintails, Blue-wing and Cinnamon Teal, Scaup, Shovelers, pelicans, grebes, cormorants and innumerable shore birds all breed in the area and can be seen throughout spring and summer in either Kinbrook

Marsh, adjacent Lake Newell, or in many of the surrounding irrigation-related waters.

I've lived in the EID for over twenty years and although I still marvel at the beauty of the undeveloped prairie (with it's miniature floral displays, antelope, and hawks), I am awed when I see the number and variety of waterfowl that breed and live in the countless reservoirs, drain sloughs, and planned marshes of Alberta's irrigation districts -- areas that would otherwise produce a limited amount and variety of wildlife. Fortunately in the EID we have the best of both worlds because more than three-quarters of the area contained within the EID is native range so in addition to the waterfowl associated with the wetlands, the EID also contains diverse prairie flora and fauna. First-time visitors from the parklands, foothills, and northern forests will be amazed at the diversity of wildlife in southeastern Alberta.

Kinbrook Island Provincial Park, immediately adjacent to the marsh, has a bird list that includes 87 species of birds. Although a few of the species listed are either mistakes or historical sightings and not currently seen, other contemporary species like Whistling Swans, Rough-legged Hawks, Snow and Speckled Geese, jays, and hummingbirds are not included in the official list. This incredible diversity within Kinbrook Island Provincial Park and the adjacent Kinbrook Marsh (about 3 square kilometres in total) is likely unequalled on the prairies. This diversity is further enhanced in the surrounding countryside with species like mule and whitetail deer, antelope, ground squirrels, badgers, eagles, Burrowing Owls, coyotes, pincushion and prickly pear cacti, moss phlox, coneflowers, sagebrush and SUNSETS. You haven't lived until you've experienced a prairie sunset!

If you are a birder or photographer, consider the Eastern Irrigation District and Kinbrook Marsh for your next vacation -- before you head for the mountains. The marsh is adjacent to the full-facility Kinbrook Island Provincial Park campground, about 15 minutes south of Brooks. Dinosaur Provincial Park, a UNESCO World Heritage Site, is only 40 minutes north of Brooks. In addition to the spectacular scenery and archaeological significance of Dinosaur Park, you will also see mule deer, eagles, hawks, a bull snake if you are lucky, and prairie flora.

A CO-OPERATIVE PROJECT
KINBROOK MARSH

Kinbrook Marsh - A Cooperative Ventures Project (Photo: Clive Schaupmeyer)

Kinbrook Marsh is one small example of the tremendous wildlife diversity in southeastern Alberta, and a prime example of the multi-use of water diverted for irrigation. Wetlands, prairie and badlands, all within a short drive from the Town of Brooks, await you in the Eastern Irrigation District.

Author's Address:
Box 1204, Brooks, Alberta T0J 0J0

Breeding Bird Survey Report, 1988 - 1989

Jack L. Park

This report is a follow-up to the article printed in the A.N. Summer, 1988, Volume 18, Number 2.

The Breeding Bird Survey is an ongoing co-operative programme sponsored by the U.S. Fish and Wildlife Service and the Canadian Wildlife Service. All routes run in Canada and the U.S. are done by volunteers, most are amateurs, and totalling over 10,000 man hours for all routes. Done in Canada and the U.S., its main purpose is to estimate population trends of the many species of birds that nest in North America north of Mexico and migrate across international borders. The scheme first started in the Eastern U.S. and Canada in 1965. In 1968 the whole of Canada and the U.S. were included in the programme. In 1968 Alberta ran 5 routes and to date two of those original routes are still run by the same observers.

All observers receive route maps of a randomly selected area in a degree block wherever available and passable roads are present. The route is run once per season, preferably in the first 3 weeks of June. All routes start 1/2 hour before sunrise, comprising of 50 stops at 0.8 km intervals. All birds seen and heard at each stop are recorded on a field sheet, then transferred to a summary sheet. These results are then sent to the BBS headquarters in Maryland. Computer printouts are made for each route and sent to each observer for checking. A summary of the whole province or state is sent to the co-ordinators and is sent in two forms, summary by route and summary by species. For the last 10 years the average number of routes in Alberta has been 30.7 per year, and in 1989 there were 40 routes completed.

A total of 242 species have been recorded over the past 22 years. The average number in the last 9 years is 192, the lowest was 181 in 1986, the highest of 201 in 1988. Seldom seen species make up the difference in the varying number seen each year, usually because of their scarcity or quiet manner.

We are delighted to report that 10 new observers took part in the BBS in 1989. One each from Hinton, Edmonton, Standard, Vermilion and Edson, 5 from Calgary, and for the first time an observer from outside Canada took on a route in the mountains. There are now 7 degree blocks in Alberta that have 2 routes each.

The BBS has now become an important factor in supplying information for research. Nationally, data from the BBS was one of the major factors leading to the inclusion of the Baird's Sparrow on the Threatened Species List by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). The BBS is also used heavily in Environment Canada's State of the Environment Report. To increase input and to help supply more data to these reports, we still need many more volunteers to assist with this programme. Areas in Eastern and Southern Alberta still are not covered. These include routes located at Seven Persons, Fort Macleod, Cereal, Big Stone, Talbot, Youngstown and Bindloss. Volunteers in these areas would be greatly appreciated.

Frequency Of Bird Sightings On All Routes In Alberta

While many birds, such as the Red-winged Blackbird, Starling, American Crow and Cliff Swallow are the most numerous species, no single species of bird has been sighted on every BBS route in a single year. Except in 1989 - the America Robin was included on every route.

The Robin was followed by the Barn Swallow, 37 routes, American Crow, 36 routes, Mallard, Clay-colored Sparrow, Savannah Sparrow each on 35 routes, and the Magpie and Red-winged Blackbird on 34 routes.

Return Of The Meadowlark

The Western Meadowlark has declined greatly on the BBS routes, especially in the northern portions of the Province. 1988 and 1989 has seen the return of these species after long absences. A few of the areas having seen their return are:

Derwent Last seen in 1932,
returned in 1988, 1989.
Two Hills Last seen in 1983,
returned in 1987, 1988, 1989.
Linbrook Last seen in 1976,
still absent after 13 years.
Calahoo Last seen in 1977,
returned in 1989.
Kinikinik Last seen in 1982,
returned in 1989.
Raven Last seen in 1986,
returned in 1989.
Delburne Last seen in 1976,
returned in 1989.

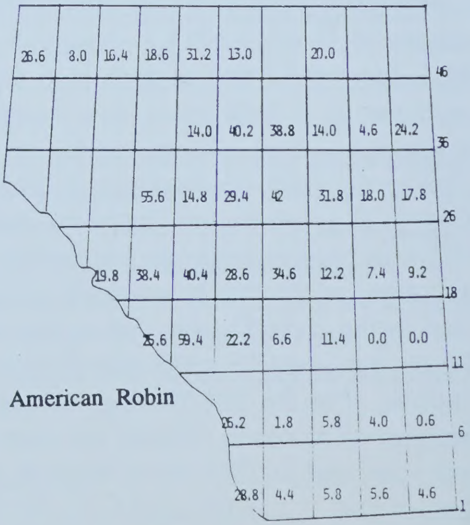
No sightings of the Western Meadowlark have been seen on the BBS in Winagami, Watino or Wembley.

Black-billed Cuckoo

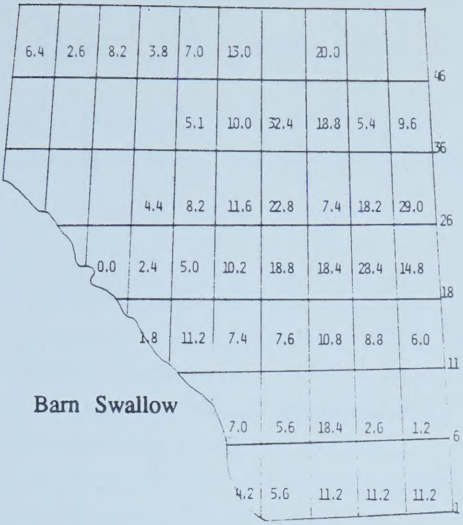
In the last report an all time high of black-billed cuckoos were recorded in 1987 totalling 34 individuals. This species showed an increase in the eastern regions and I was hoping that we would have an increasing population in Alberta. But that was not to be as there were 14 individuals recorded in 1988 and back to the normal of only 2 recorded in 1989. So they remain scarce, but there were exciting moments.

*****

The following maps show bird population densities throughout Alberta where routes are run the most regularily. The results are taken from data for a 5 year period from 1984 to 1988. The numbers in each degree block represent the average number of individuals recorded on a BBS route per year. The small numbers on the right of each map refers to the route number of the degree block on that side.



American Robin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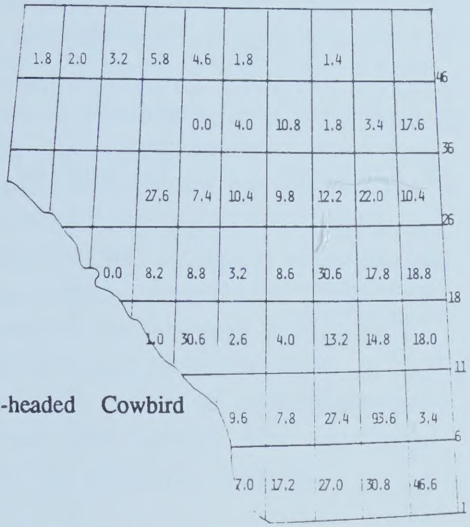
Barn Swallow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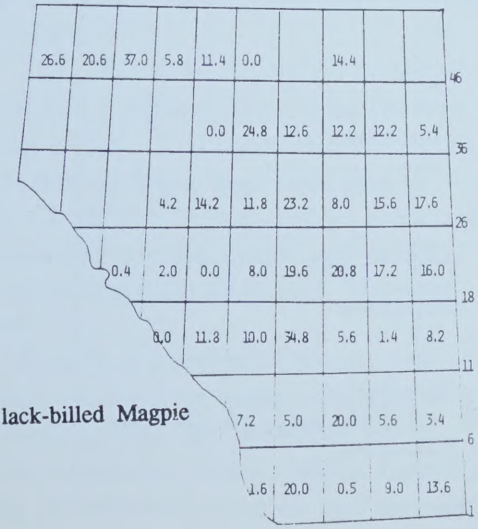
Brown-headed Cowbird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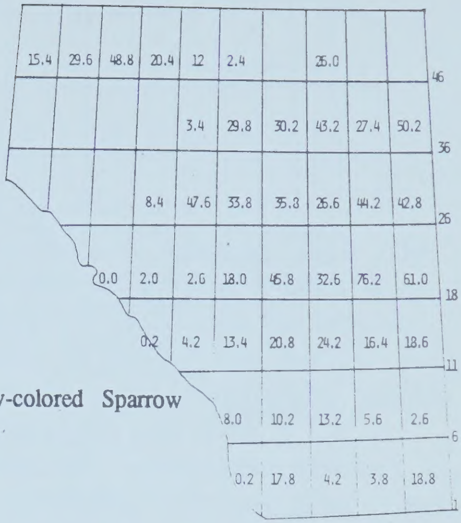
Black-billed Magpie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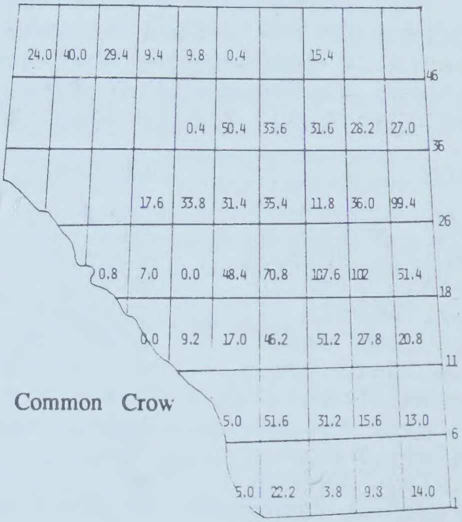
Clay-colored Sparrow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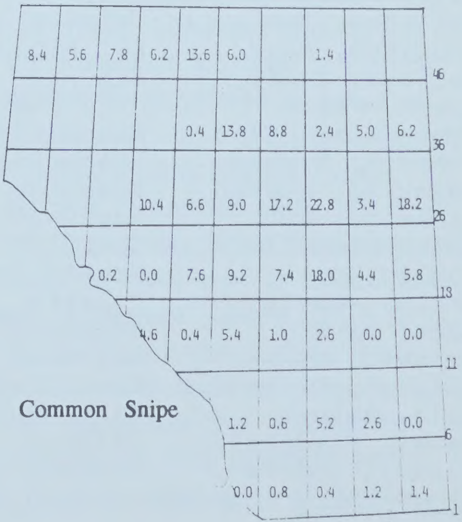
Common Crow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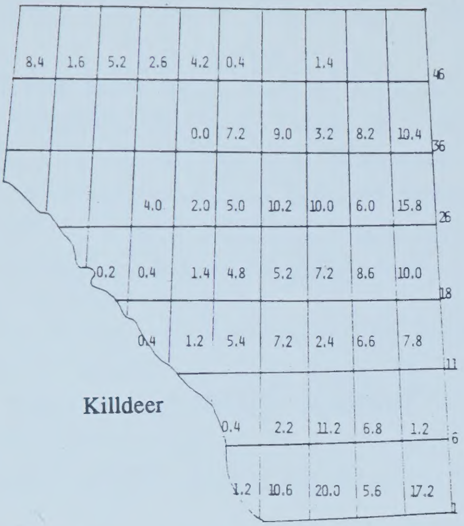
Common Snipe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Killdeer
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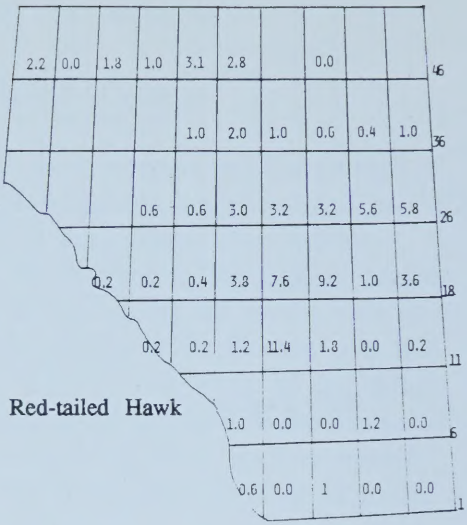
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46
1.0 2.0 1.0 0.0 0.4 1.0
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0.6 0.6 3.0 3.2 3.2 5.6 5.8
26
0.2 0.2 0.4 3.8 7.6 9.2 1.0 3.6
18
0.2 0.2 1.2 11.4 1.8 0.0 0.2
11
Red-tailed Hawk
1.0 0.0 0.0 1.2 0.0
6
0.6 0.0 1 0.0 0.0
1

Following is a list of observers who took part in the BBS in 1989, along with the number of years of service and number of routes run. My thanks to the ten new observers who have taken on routes of their own - welcome to the world of early morning birding! Thanks also to the assistants who are so important in making the BBS a success.

NAME	RESIDENCE	YEARS OF SERVICE	NO. OF ROUTES
Beck, Barb	Edmonton	New Observer	1
Beniot, Suzanne	Vermilion	New Observer	1
Bonar, Richard	Hinton	New Observer	2
Cox, Sheila	Calgary	New Observer	1
Cuthiell, David	Edmonton	7	1
Demulder, Peter	St. Albert	19	1
Dewit, Luke	Calgary	New Observer	1
Dolman, Teresa	Lethbridge	6	1
Ealey, David	Edmonton	5	2
Finlay, Warren	Edmonton	13	2
Greenlee, Graeme	Lethbridge	20	1
Hall, Willis	Calgary	22	3
Halladay, Ian	Calgary	22	1
Hingston, Alan	St. Albert	3	1
Holroyd, Geoff	Edmonton	10	2
Horch, Phil	Medicine Hat	5	1
Hvenegaard, Glen	Standard	New Observer	1
Johnson, Harvey	Lethbridge	12	1
Jungkind, Stefan	Edmonton	5	2
Kinnaird, John	Barrhead	18	1
Lohr, Lloyd	Stettler	20	1
Lumbis, Ken	Grande Prairie	6	1
Lumley, David	Calgary	New Observer	1
Park, Jack	Edmonton	22	2
Pearman, Myrna	Red Deer	3	2
Quinlan, Richard	Edson	New Observer	1
Reid, Robert	Birmingham, Alabama. First out of Canada observer.		
Savoy, Elizabeth	Calgary	New Observer	1
Slater, Andrew	Calgary	5	2

Author's Address: 10236 - 70 Street., Edmonton, Alberta T6A 2T4.

Participant Backgrounds and Views From the 1988 Edmonton And Calgary Christmas Bird Counts

Prepared by Harry A. Stelfox,[1] Peter C. Boxall,[2] Jim R. Butler [3] and Glen T. Hvenegaard.[1]

INTRODUCTION

Christmas Bird Counts (CBCs) require two essential ingredients - birds and bird-watchers. Counts that involve large numbers of participants, as in Edmonton during the past two years (over 1000), require major efforts by volunteer organizers. After the 1988 Edmonton count, organizers proposed assessing the participants' perspectives on count success. Why did people participate, were they likely to continue to participate, and what were their interests and backgrounds? How does participant background and experience in more traditionally organized counts, such as the Calgary CBC, compare with the Edmonton count? Answers to these questions were needed, to maintain and possibly expand the count in future years. A mail-out questionnaire survey of participants in Edmonton and Calgary was considered suitable for obtaining answers.

BACKGROUND ON CHRISTMAS BIRD COUNTS

The CBC is an organized count of birds, within a defined count area (24 km diameter circle). It is conducted over a 24-hour period during a two week period around Christmas. Count circles are usually in and near towns and cities, and involve local volunteer naturalists and interested citizens.

Results are compiled locally and regionally. Data from counts that follow a prescribed method are submitted to the National Audubon Society, which maintains a North American data centre and annually publishes results in American Birds. The compiled data can be used to detect long-term changes in population numbers and distributions of selected bird species. Such results can be useful in identifying possible causal factors for such changes and in establishing bird conservation priorities, as well as stimulating more specialized population monitoring programs (Butcher 1989). The useful role of CBCs is summarized by Geoffrey S. Le Baron as follows:

> "The Christmas Bird Count soldiers on each year becoming increasingly important as a tool for monitoring early winter avian populations and general environmental quality. It is true that each and every participant on every count IS making an important contribution to a major conservation effort. In point of fact, no other biological survey even approaches the Christmas Bird Count in terms of geographic coverage and years of data collection."
> (Le Baron 1989)

Considerable interest is shown in recreational and sporting aspects, such as areas obtaining the most species or most participants, or finding rare and unusual species.

CBCs were started by Frank Chapman in 1900. Chapman was curator of birds at the American Museum of Natural History in New York, as well as editor of Bird Lore magazine (now American Birds), which published results from the early CBCs. He was concerned about the large numbers of birds being killed for ornamental feathers, such as those used in ladies' hats at the time. Chapman wanted CBCs to serve as educational tools so the public would become more sensitive to bird welfare and understand the relationship between decreasing bird numbers and excessive hunting. The motto of the day was, "A bird in the bush is worth two in the hand."

The first CBCs were conducted at 25 locations across North America on Christmas Day, 1900. The first Canadian counts were held at Scotch Lake (New Brunswick) and Toronto in that year. By 1925, 11 Canadian counts were established. The first count in Edmonton took place in 1906, and in Calgary in 1919. In 1915, the basic rules for conducting such counts were formalized to ensure consistency and compatibility of results, making CBCs the largest organized bird census in the world. Today, there are over 200 counts across Canada and 1500 in the Americas.

CBCs have traditionally involved a small dedicated core of active outdoor naturalists. Count organization has usually been handled by local naturalist organizations. The past decade has seen a steady increase in the numbers of counts and participants. From 1980 through 1988 the number of outdoor-watchers increased from 31,059 to 35, 797 (1.7%/year), while feeder-watchers increased from 2743 to 6874 (16.7%/year) (American Birds - annual CBC summaries). Increases in participation levels in Edmonton, Calgary and Alberta locations are summarized in Table 1.

The increase in participation in Alberta from 1986 to 1987 may have been due, in part, to the extensive publicity generated by Canada's Wildlife Centennial. However, substantial promotional and recruitment efforts by the CBC organizing committee likely caused the big jump in Edmonton, most of which has occurred in the feeder-watcher category, which represented 78% of participants in 1988. In Calgary, feeder-watchers represented 32% of 1988 participation.

PURPOSE AND ORGANIZATION OF THE PARTICIPANT SURVEY

Recognizing that Edmonton had a novel approach to its CBC by developing a highly publicized event, organizers had many questions. Was the count providing valuable recreational and educational experiences for large numbers of people, and at the same time, producing bird count data of accept-

Table 1. Christmas Bird Count Participation (1982-1989)[1]

	Participants in Edmonton			Participants in Calgary				
Year	Outdoor-Watcher	Feeder-[2]Watcher	[2]Total	Outdoor-Watcher	Feeder-Watcher	Total	Participants in Alberta	# of Counts in Alberta
1982	-	-	39	-	-	49	325	19
1983	-	-	52	38	1	39	320	21
1984	51	3	54	48	20	68	356	21
1985	31	2	33	53	28	81	430	21
1986	163	348	511	56	25	81	1132	22
1987	135	1153	1288[3]	57	43	100	2084	40
1988	254	918	1172	75	35	110	1886	47
1989	236	814	1050	79	50	129	1998	45

[1] Data obtained from annual CBC summary reports in Alberta Naturalist and American Birds (published by the National Audubon Society.

[2] Outdoor-watchers are defined as participants who are actively searching for birds in the fields and neighbourhoods of their assigned area, whereas feeder-watchers are participants who are recording, at their residence, birds seen visiting bird feeders and the immediate yard area.

[3] Represents the world record for number of participants in a CBC.

able quality? How did the count compare with that of a similar urban centre where a smaller and more traditional core of active outdoor naturalists was involved? Thus, Calgary participants were invited, and agree, to participate in the questionnaire survey.

The Watchable Wildlife and Socioeconomic programs, Alberta Fish and Wildlife Division, and the Department of Forest Science, University of Alberta, agreed to undertake the participant survey. A mail-out questionnaire was developed to examine how various factors influence the success of the counts, in terms of bird data quality and recreational/social experience provided to participants. Summary highlights follow from the results of this questionnaire survey.

RESULTS

Questionnaires were mailed to all participant households in Edmonton (713) and Calgary (101) for which addresses were available. Response rate were excellent at 443 returns for Edmonton (62%) and 65 for Calgary (64%), which suggests a high level of participant interest and commitment.

A. General Participation and Activity Characteristics

Participants are grouped into two categories as defined in Table 1 - outdoor-watchers and feeder-watchers. Table 2 compares their proportions as determined from two sources: published count results (from Table 1), and participant survey questionnaire results.

Outdoor-watchers in both Edmonton and Calgary apparently responded to the questionnaire in higher proportions than their actual representation in the count and Edmonton feeder-watchers responded in somewhat lower proportions (Table 2). Survey results indicate that approximately 10% of respondents in both cities classified themselves as outdoor-watchers and feeder-watchers. Both data sources clearly indicate that feeder-watchers predominate among participants in Edmonton, whereas outdoor-watchers are much more prevalent in Calgary.

Table 2. Proportions (%) of 1988 participants by activity types.

	Edmonton		Calgary	
Activity	Published Results	Participant Survey	Published Results	Participant Survey
Outdoor-watcher	22	43	68	79
Feeder-watcher	78	68	32	31
	100	111[1]	100	110[1]

[1] Totals equal more than 100% because respondents could indicate they participated in more than one type of activity.

In Edmonton, 52% of surveyed participants indicated previous involvement. These data suggest a rather high level of turn-over in participation from year to year, especially in Edmonton where the very high numbers of participants are apparently sustained by intensive promotional and new recruitment efforts. Even in Calgary, the indicated turn-over rate is higher than expected for a count that is presumably built around a fairly stable core of long-term, experienced bird-watchers. Previous participation was similar between the feeder-watcher group (55% previously participated) and the outdoor-watchers (51% having previous experience).

B. Abilities And Interests of Participants

Bird-watching Expertise

Survey participants were asked to classify their level of expertise as follows: casual (very rarely watch birds, or not really interested), novice (beginner, interested and learning), intermediate, or advanced. Edmonton had a much higher proportion of casual and novice bird-watchers (57.9%) compared to Calgary (27.7%) as shown in Table 3.

The Edmonton expertise profile is strongly influenced by the feeder-watcher component the majority of whom categorized themselves as casual and novice bird-watchers. Interestingly, no Calgary respondents classified themselves as casual bird-watchers.

Participants were also asked how many species of birds (in five numerical categories) they could accurately identify without the aid of field guides. The results are summarized in Table 4.

This table shows the expected positive relationship between a participant's self-classified bird-watching expertise and the approximate number of bird species they believe they can identify.

Lists of birds identified over the years are kept by 19% of the Edmonton participants, with an average of 203 species per list. A much higher proportion (64%) of Calgary participants, were listers, with an average of 367 species per list. However, the average number of years spent watching birds is very similar, being 12.9 for Edmonton participants and 12.2 for Calgary participants. This similarity may be related more to the nearly identical average age of Calgary (48 years) and Edmonton (47 years) participants than to the relative levels of bird-watching expertise. These data suggest that the Calgary participants are, on average, much more experienced bird-watchers than the Edmnonton participants, and that age and number of years spent bird-

Table 3. Percentage of participants by self-classified expertise category

	Casual	Novice	Intermediate	Advanced
Edmonton	8.5	49.4	33.4	8.7
Calgary	0.0	27.7	50.8	21.5
Outdoor-watchers	4.2	31.4	45.6	18.0
Feeder-watchers	8.2	57.0	30.4	3.8

Table 4. Percentage of participants who can identify number of species.

Number of Species	Casual	Novice	Intermediate	Advanced
0-10	47.2	21.0	1.5	0
10-40	47.2	66.0	28.5	3.0
40-100	2.8	11.5	36.5	9.5
100-200	2.8	1.5	26.5	34.0
200+	0	0	7.0	53.5

watching are probably not useful determinants of expertise. Kellert (1985) felt that the most sensitive indicator of the "casual" versus "committed" bird-watcher was the number of bird species that could be identified. He defined "committed" as those who indicated an ability to identify more than 40 bird species. In Kellert's and our studies such results must be interpreted with caution because they are subjective, questionnaire-based, self-assessments of ability to correctly identify a certain number of bird species. An independent, objective test of bird identification skills for sub-samples of the survey respondents would help to clarify the validity of these questionnaire responses.

Feeder-watchers averaged 12.5 years of experience watching birds, with only 23% indicating that they could reliably identify more than 40 species of birds. In comparison, outdoor-watchers average 13.6 years of experience, but 64% stated they could identify more than 40 species.

Kellert (1985) found in his random sample of 2455 Americans that, of the 25% who identified themselves as bird-watchers, only 3.2% indicated that they could identify more than 40 bird species. This is significantly different than the 41% of all Edmonton and Calgary CBC participants and the 23% of all feeder-watchers who indicated an ability to identify 40 or more bird species. This apparently large discrepancy may be the result of much higher proportions of "casual" bird-watchers in Kellert's study people who do not use specialized equipment and observe birds mostly on an incidental basis.

Participation in Wildlife-related Activities

Count participants were asked to check off wildlife and outdoor-related activities in which they participated in 1988. Table 5 shows the proportions of participants involved in each activity, with those activities most frequently engaged in ranked first.

By far the most popular wildlife-related activity was maintaining a bird feeder, which involved 87% of all participants in 1988. This is not surprising given the large proportion of participants who signed up as feeder-watchers in the much larger Edmonton Count. However, even among the outdoor-watchers in Edmonton and Calgary, an average of 76% maintained a bird feeder. Bird-feeding may be an important way for the general public to become involved in bird-watching.

Table 5. Percentage of participants involved in twelve wildlife and outdoor-related activities during 1988.

Activity Type	All Participants	Advanced Participants
Maintaining a bird feeder	87.1	76.5
Observing wildlife	75.7	100.0
Observing flowers	73.4	74.5
Hiking/camping	66.6	84.3
Bought wildlife books	66.0	86.3
Watched wildlife films	61.8	76.5
Photographed wildlife	53.3	70.6
Maintained nest box	41.4	49.0
General nature observ.	39.6	56.9
Cross-country skiing	38.2	51.0
Canoeing/kayaking	23.5	31.4
Took a wildlife course	12.7	19.6

Forty percent (40%) of Edmonton participants indicated they belonged to one or more wildlife-related organizations compared to 77% of Calgary participants. Kellert (1985) found only 14% of committed bird-watchers in his study belonged to private, nonprofit conservation organizations. Over 8% of residents in Alberta reported being members of, or contributors to, wildlife organizations in 1987, while almost 54% indicated interest in participating in such organizations (Federal-Provincial Task Force for the 1987 National Survey on the Importance of Wildlife to Canadians 1989).

C. Socio-Demographic Characteristics of Participants

Participants in both Calgary and Edmonton were considerably older, better educated, and had higher household incomes, than the average for the provincial population. This corresponds with other recent studies of bird-watchers in North American (Butler and Hvenegaard 1988, Butler and Fenton 1987, Kellert 1985).

Over 75% of participants were between 37 and 59 years of age. Edmonton participants average 47 years of age, while Calgarians average 48 years, compared to an average for all Albertans in 1986 of 30 years (Statistics Canada 1986). Feeder-watchers averaged somewhat higher at 50 Years compared to outdoor-watchers at 44 years. The average age was probably somewhat lower than indicated, since the questionnaire provided space for a response from only one household participant who would more likely be an adult where family groupings were involved. The range in ages was substantial, being 6 to 84 years in Edmonton and 17 to 74 years in Calgary. The average age of bird-watchers surveyed at Point Pelee National Park in 1987 was 49 years (Butler and Hvenegaard 1988).

The proportion of male and female participants was not significantly different from the roughly 50:50 split in the general population. Slightly more females participated in the Edmonton count 54%) whereas the opposite was the case in Calgary with 52% male participants. The feeder-watcher participants were predominately females with 61% in Edmonton and 70% in Calgary. The profile of 603 bird-watchers at Point Pelee was 58% male and 41% female (Butler and Hvenegaard 1988).

Participants in both cities average 16 years of formal education compared to 12.1 for the Albertans in general (Statistics Canada 1986). Thus, most count participants have a significant amount of post-secondary education, averaging the equivalent of a bachelor's degree. Butler and Hvenegaard (1988) recorded an average of 15.8 years of formal education for bird-watchers at Point Pelee. Kellert (1985) found that close to two-thirds of committed bird-watchers had a college and/or graduate school education compared to less than one-third of those that were not bird-watchers.

Disproportionately high percentages of CBC participants were from professional and managerial occupations as compared to the population in general (Table 6). This corresponds to the higher educational profile previously described. Calgary participants were particularly heavily weighted (46%) in the professional and managerial occupations. Tradesperson, technician, clerk and labourer occupations were significantly under-represented when compared to the proportions in the general Alberta population. Edmonton participants included much larger proportions of retired and homemaker occupations as compared to Calgary. The Point Pelee bird-watchers surveyed in 1985 by Butler and Fenton (1987) were more similar in their occupational profile to the Calgary participants.

Table 6. Camparison of occupational profiles of Edmonton and Calgary Christmas Bird Count participants with Albertans in general and Point Pelee bird-watchers

	% of Participants		% of Albertans	% of Point Pelee
	Edmonton	Calgary	In General 1	Bird-watchers 2
Professional and Managerial	30.9	46.0	15.1	50
Student	4.3	3.2	9.2	6
Retired	25.3	14.3	NA	13
Homemaker	22.4	17.5	NA	NA
Other 3	17.8	19.0	35.9	NA

1From Statistics Canada (1986)
2From Butler and Fenton (1987)
3Other: includes tradesperson, technicians, clerks and labourers.

The household incomes of both Edmonton and Calgary participants were significantly higher than the average for all Albertans. Nearly 80% of all participants reported household incomes greater than $30,000 per year. Thirty-three percent (33%) of Edmonton participants, and 54% of Calgary participants, come from households with annual incomes over $60,000, compared to only 18% of Alberta households in that category (Statistics Canada 1986). These income levels reflect the higher proportions of professional and managerial occupations amongst participants, particularly in Calgary. Butler and Hvenegaard (1988) reported an average household income of $57,000 per year for Point Pelee bird-watchers compared to a Canadian average of $38,000.

The socio-demographic profile of both Edmonton and Calgary count participants has many of the same characteristics reported for bird-watchers in other parts of North America. The Calgary participant profile is somewhat closer to the committed bird-watcher profile, whereas the Edmonton participant is representative of a broader cross-section of society.

D. Participants' Views On The Christmas Bird Count

The vast majority of participants indicated satisfaction with the count and 94% of all participants indicated that they would participate again. In addition, the majority of participants (>60%) at all skill levels, and in both Edmonton and Calgary, believed that the bird count data were fairly, or very, useful for wildlife management purposes. Less than 7% of participants felt that the data were of little, or no, usefulness.

Open-ended questions at the end of questionnaire, invited participants' views on what they found most enjoyable about participating in the count and also what they found least satisfying (or most frustrating) about their participation. Eighty-nine percent (89%) of the 508 survey respondents provided responses to these open ended questions. For analysis purposes, the individual responses were grouped into categories of positive comments (Table 7) and categories of negative comments (Table 8).

Clearly, the primary satisfaction for all participants was being outdoors and seeing birds. Also a major motivation, particularly for Calgary participants and feeder-watchers, was the thought of helping wildlife conservation by collecting useful data. Using the CBC as a family outing opportunity was much more important to participants in Edmonton than in Calgary. Calgary

Table 7. Participant comments that reported on the most enjoyable aspects of the Count (as a percentage of all positive comments).*

Categorization of Comments	Edmonton	Calgary	Combined	Feeder-Watcher	Outdoor-Watcher
1. Being outdoors and seeing birds.	32.1	24.1	30.7	33.7	29.1
2. Helping wildlife by collecting data.	9.8	19.5	11.3	15.0	7.9
3. Meeting other birdwatchers.	7.7	14.9	8.8	4.2	12.7
4. Obtaining rare, new or otherwise interesting sightings.	8.5	8.0	8.5	6.2	9.7
5. Learning new things	8.1	6.9	8.0	8.2	9.1
6. Having a family outing.	7.3	1.1	6.4	7.8	5.2
7. Other comments.	26.5	25.5	26.3	24.9	26.3

*Based on 579 individual positive-typed comments, 492 from Edmonton participants and 87 from Calgary participants.

Table 8. Participant comments that reported on the least satisfying and most frustrating aspects of the count (as a percentage of all negative comments).*

Categorization of Comments	Edmonton	Calgary	Combined	Feeder-Watchers	Outdoor-Watchers
1. Lack of rare, new or otherwise interesting sightings.	33.0	36.5	33.5	40.5	28.1
2. Scheduling time for the Count.	14.5	3.8	13.0	16.7	7.8
3. Inadequate contact by zone captains.	7.5	9.6	7.8	2.3	11.5
4. Large size of count and potential for duplicate counting.	7.5	7.7	7.6	9.3	5.7
5. **Adverse weather.**	**6.6**	**9.6**	**7.0**	7.4	7.8
6. **Inadequate preparation.**	**6.9**	**5.8**	**6.8**	6.5	6.3
7. Other comments.	23.9	26.9	24.3	17.3	32.8

*Based on 370 individual negative-typed comments, 318 from Edmonton participants and 52 from Calgary participants.

participants and outdoor-watchers were particularly interested in meeting other bird-watchers.

By far the most frustrating aspect was not seeing particularly rare, interesting or first-time sightings of species. This is not a surprising comment considering that relatively few bird species are regularly seen in either Calgary or Edmonton during winter. Edmonton has only 24 species that are commonly seen and expected on every CBC and most participants are probably doing well to see over half of these on count day. Even fewer bird species are regularly seen at bird-feeders.

Finding time to participate in the count was cited much more often as a problem by Edmonton participants, particularly feeder-watchers. Many Edmonton participants, half of whom were participating for the first time, may have made their decision to participate only a few days before the count. This may also reflect the greater time demands of Edmonton's full weekend festival. Calgary and Edmonton participants had similar concern for possible duplicate counting of birds; feeder-watchers were justifiably more concerned than outdoor-watchers.

Many people expressed a desire to have more training sessions before the count so that they would be better able to distinguish the different types of birds. Some people suggested a take-home identification kit would be helpful. Many novice bird-watchers expressed appreciation when paired up with more advanced bird-watchers, while a few novices felt unwelcome.

Many Edmonton respondents were excited by their count being the largest in North America. People in the Calgary survey also expressed satisfaction at finding the most species for an Alberta count in 1988. Some people felt that adding so many people (particularly the less experienced, casual and novice bird-watchers) to the count reduced the accuracy and usefulness of the data. One person suggested that feeder-watchers should be separated from the rest of the count because of a perceived greater chance of duplicate-counting.

CONCLUSIONS AND FUTURE CONSIDERATIONS

Participants in both the Edmonton and Calgary Christmas Bird Counts were motivated most frequently by recreational and social enjoyment factors. A noteworthy secondary satisfaction was participant awareness that their efforts could help to conserve wildlife through the collection of useful data on winter bird populations. Opportunities for increased knowledge of birds and the environment were also recognized as valuable by several participants.

The socio-demographic profiles of participants were similar in many respects to those described for bird-watchers in other studies in North America. The profile of Calgary participants was most similar to that of very committed, expert birders, whereas Edmonton participants represented a broader mix of interests and backgrounds.

Very large proportions of participants in both cities are highly educated, work in specialized professional and managerial occupations and have significantly higher-than-average household incomes. This suggests that many of these individuals occupy positions of influence in society, positions that could be important in decisions having implications for wildlife conservation and environmental protection.

The bird-watching skills of Calgary participants were on average, significantly higher than those of Edmonton participants. Kellert (1985) found that committed bird-watchers were exceptionally knowledgeable, concerned and interested in wildlife and the natural environment. This corresponds to the higher proportion of Calgary participants who expressed satisfaction in knowing they were helping wildlife through the collection of bird data.

The results of this survey have helped to clarify the backgrounds, experience-levels, interests and motivations of count participants. Hopefully these insights will help organizers to attract new participants, to establish new counts in other locations, and also to maintain the active involvement of past participants. This study has also focused attention on some key questions that still do not have definitive answers. Can and should Christmas Bird Counts play a role in attracting new people to bird-watching as a continuing recreational activity? Does casual and novice-level participant involvement eventually lead to increased bird-watching expertise, knowledge and commitment to wildlife conservation? Does the involvement of large proportions of novice-level and feeder-watcher participants necessarily compromise the usefulness of the resulting bird count data? Answers to these questions are not simple, nor obvious, and require further careful investigation. This study should serve as a useful reference point in finding answers to these and other questions important to the future success of Christmas Bird Counts and the vision Frank Chapman had when he organized the first counts in 1900.

[1] Watchable Wildlife Program, Alberta Fish and Wildlife Division, Edmonton
[2] Socioeconomic and Program Services, Alberta Fish and Wildlife Division, Edmonton
[3] Parks and Wildlife, Department of Forest Science, University of Alberta, Edmonton

Acknowledgements

Cam Finlay in Edmonton, and Ian Halladay in Calgary, kindly provided names and addresses of count participants and helped to clear the way for undertaking the survey. Also, Andrew Slater provided participant numbers from the Alberta Christmas Bird Counts held in 1989. We would like to thank Darryl Hurlock, Laurinda Naaykens and Amit Saxena for the numerous hours spent in data checking, coding, computer entry and summary tabulations. Bernie Gollop, Cam Finlay, and Ian Halladay provided useful comments on earlier drafts of this paper. Dave Ealey provided many helpful editorial suggestions.

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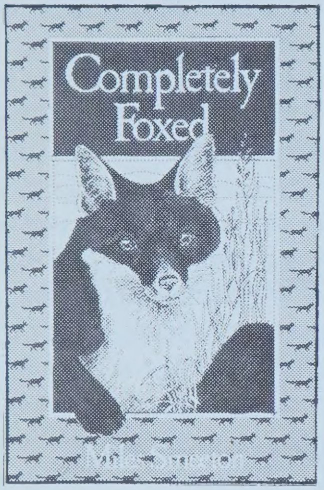

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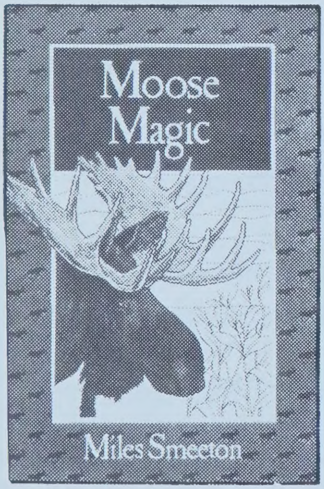

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Encounter With A Small-Footed Bat *(Myotis ciliolabrum)* in the Foothills of Southwestern Alberta

Doug Collister and Clay Hunt

INTRODUCTION

Late in the evening on August 22, 1989 Hunt placed a Ketch-all automatic mouse trap (containing two mouse carcasses) on the deck of his farm house located 3km southwest of Water Valley. At approximately 05:00 the next day he heard the trap go off. At 09:00 Hunt went outside and carried the trap over to a grassy area to empty it. As he slid back the lid a hissing sound emanated from the trap causing him to quickly put the trap down. Upon further examination he observed a very small bat, at least as small as a little brown bat *(Myotis lucifugus)*. However, the bat in the trap was very light coloured, most aptly termed blond, with dark wings and a dark "mask" through the eyes. Hunt left the bat and the trap alone and checked on them occasionally through the day ascertaining that the bat left sometime between 14:00 and 16:00 hours. Hunt did not photograph the animal.

BACKGROUND

The small-footed bat *(Myotis ciliolabrum)* is the smallest bat found in Alberta and typically has a pale brown, almost blond pelage with black ears and flight membranes and a dark band through its eyes forming a mask (Smith 1982). This species is thought to be relatively common throughout the arid regions of Alberta and perhaps widespread in the badlands and arid river valleys of the Milk River area (Alberta Agriculture 1986). The species has been collected sporadically in southern Alberta particularly in Dinosaur Park where it appears that some small-footed bats may bear young and perhaps hibernate (Alberta Agriculture 1986). Dr. Robert Barclay of the University of Calgary (pers. comm.) has captured many small-footed bats in the Milk River area and at Dinosaur Park. A hardy species, the small-footed bat is the last species to enter hibernacula in the western United States and the first to leave. Usually only a few individuals are found in narrow crevices near the mouth of caves.

DISCUSSION

Hunt's encounter with a small-footed bat appears to be a very unusual interaction with a species not well studied anywhere in its range. Two points regarding Hunt's observations merit discussion. Firstly the entrance of the bat into the trap. It is possible, but unlikely, that it was attracted to the mouse carcasses inside. Certainly an odor of decomposition was present to lead a scavenger in. However the fact that *M. ciliolabrum* is exclusively insectivorous and the lack of evidence that the bat in question actually fed on the carcasses suggests that scavenging was not its intent. Another possible explanation is that the trap offered a roosting site. The trap was gray in colour with two small dark entrances and perhaps seemed like a natural crevice. This explanation seems more likely.

The occurrence of this species at this location is also significant. Dr. Barclay (pers. comm.) has never caught a small-footed bat in the Calgary area or west into the foothills and Kananaskis Valley. It is possible that the bat was migrating to a hibernation site, perhaps a cave in the mountains. Evidence from the western U.S. suggests that small-footed bats initiate hibernation very late (November) and thus migration seems unlikely. A more likely explanation is that the record represents the post natal dispersion of a juvenile.

An encounter of this kind inevitably poses more questions than it answers. The authors would appreciate any information on this species that readers may be able to provide.

Acknowledgements

We would like to thank B. Collister for helpful comments on an earlier draft and Dr. R. Barclay whose comments and suggestions improved this manuscript significantly.

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Authors:
Doug Collister, 3426 Lane Crescent S.W., Calgary, Alberta T3E 5X2.
Clay Hunt, Box 147, Water Valley, Alberta T0M 2E0.

Announcements

Recycled Paper Available

Recycled paper for printing and personal use is becoming available in Alberta. Earthcycle Paper Corp., a newly established company in High River, aims to supply environmentally sound recycled paper at an affordable cost. They carry a selection of all-purpose, copy, computer, card stock, and letterhead-type papers, plus lined pads of 50 sheets each. Contact Sandy Day (403-652-2813) or Penny Marshall (403-652-2650). Earthcycle Paper Corp., P.O. Box 3884, High River, Alberta T0L 1B0.

Some Earthcycle products are also available through the Environmental Resource Centre in Edmonton (10511 Saskatchewan Drive, phone 433-8711).

Coast Paper, a large Canadian distributor of paper for the printing industry, has recently begun carrying a selection of recycled paper. (Some of the paper is also available in 8 1/2 by 11 inch sheets for general use.) Contact Coast at 452-1275 in Edmonton or 291-1030 in Calgary for more information.
(Reprinted from ACS Update, Environment Council of Alberta.)

*****

Canadian Lakes Loon Survey

Since 1981, the Long Point Observatory (LPBO) has been conducting surveys of loons in Ontario. The Ontario surveys were begun over concern about the possible effects of acid rain and human disturbance on Common Loons. These surveys discovered that loons may not be successfully producing young on lakes that are susceptible to acid precipitation. But it is clear that we need to have information from all regions of Canada, from both disturbed and undisturbed habitats, in order to monitor the health of loon populations and the aquatic ecosystems that support them. For example, Quebec is home to a large proportion of Canada's loons, yet 82% of its lakes are considered acid sensitive. Are loons in Quebec being affected in ways similar to those in Ontario?

Each year, volunteers survey lakes and record information about the breeding success of loons. Three careful visits (perhaps an hour and a half checking the whole shoreline) at the right times should tell us all we really need to know, but additional observations are always useful.

In June, volunteer surveyors watch for pairs of loons that seem to be resident on the lake, and any possible nesting behaviour. The main event in July is the appearance of newly hatched chicks, and in August surveyors record how many chicks have survived the summer. But we don't just need records from lakes with loons. It is equally important to know what types of lakes loons do not successfully nest on, as well as where they do.

Many volunteer surveyors have cottages or homes on the lake they report on, or they regularly visit the same lake to canoe or fish. Some surveyors are able to report on several lakes in one area, or survey assigned lakes that are of particular scientific interest. Others even act as volunteer regional coordinators, organizing their own group of volunteers to cover a large lake or group of lakes. Cottage associations may also appoint a member to organize a loon survey.

Members interested in participating in the Canadian Lakes Loon Survey should send their name, mailing address, and the name and location of the lake (or lakes) they will be surveying to: Canadian Lakes Loon Survey, Long Point Bird Observatory, P.O. Box 160, Port Rowan, Ontario N0E 1M0, 519-586-3531. Volunteers will receive a survey kit, complete with instructions and a report form.

The Canadian Lakes Loon Survey is but one of the Long Point Bird Observatory's many projects. LPBO, founded in 1960, is an independent, non-profit organization dedicated to understanding and preserving birds. If you would like more information about LPBO, please contact us at the address given above.

Clear Support for Parks

Government looking for public support to establish new parks and protected areas should take note. A recent Angus Reid poll, commissioned by the Canadian Nature Federation, found that 61 percent of the people surveyed wanted more protected wilderness areas in Canada. In fact, three in 10 indicated the amount should be at least tripled.

''The Endangered Spaces campaign calls for an expansion of Canada's protected areas from its present level of 3 percent of the landscape to a minimum of 12 percent as recommended by the world Commission on Environment and Development,'' said Kevin McNamee, the CNF's parks and protected areas co-ordinator. ''The poll gives further evidence that Canadians feel their governments have not done enough to protect wilderness and that they support the objectives of this campaign.''

As a measure of their commitment to more parks, a phenomenal 94 percent said they would voluntarily contribute two dollars per visit at park gates if the money was used to establish more wilderness parks and conservation lands. Three out of four respondents visited a national or provincial park last year and almost half made at least three visits.

Three-quarters of those surveyed felt governments are paying insufficient attention to the protection of threatened species and habitats in Canada and considered such action to be very important. Almost half had made a financial contribution to an organization that works to protect wildlife and conservation lands. Many more -- eight out of ten -- responded they were willing to do so.

The Angus Reid Group surveyed 1,505 Canadians between February 7 and 15. The poll is considered accurate within two percentage points, 19 times out of 20. (Reprinted from Canadian Nature Federation Almanac Vol. 4 no. 2.)

*****

Endangered Spaces Campaign

Mike Quinn

Thank you for your organization's support of the Canadian Wilderness Charter and the Endangered Spaces Campaign. You are among a large number of environmental NGOs across the country who have enthusiastically endorsed this campaign. We hope that your members have had an opportunity to read a copy of the Endangered Spaces book, which is now a Canadian bestseller.

In the coming year we would like to establish communications with organizations like yours so that we can all exchange ideas and information on the task of protecting a system of protected areas across the country. As a first step, we are pleased to enclose a copy of the first annual *Endangered Spaces Progress Report* which documents action toward the campaign goal in each jurisdiction. This gives all concerned groups a common reference for assessing government performance and discussing conservation priorities in every region of the country. Any comments and suggestions on how to make it even more useful to you are welcome.

(Anyone wishing to receive a copy of the Alberta page, please contact the F.A.N office at 453-8629.)

Authors Address:
World Wildlife Fund, Prairie for Tomorrow,
c/o Dept. of Forest Science, 855 General Services Building, University of Alberta, Edmonton, Alberta T6G 2H1.

Spring F.A.N. Meeting, May 12, 1990

Martha J. Kruger

The spring F.A.N. meeting was held at the Community Centre in Stettler, Alberta.

While the directors conducted the affairs of the Federation, Lloyd Lohr as leader of our field trip, and who is very knowledgeable about the area he lives in, gave us a splendid tour. The group for the outing consisted of 21 people in six cars. We left Stettler at 9:30 a.m., drove to west of Erskine where Lloyd explained about the watershed. The watershed from Stettler runs three ways. On the north it goes into Red Willow Creek, which flows into Battle River. On the west the ponds and creeks empty into Erskine Lake which drains into Sucker Creek, and that in turn runs into Tail Creek which joins the Red Deer River. Buffalo Lake empties into Tail Creek also. At one time the Ewing Lake watershed flowed south and into the Red Deer River, which runs into the South Saskatchewan River.

A new road was built across Erskine Lake, and ponds were excavated and built into islands so when the lake goes dry, there would still be water for the waterfowl. Rock islands were built with car tires placed on top for nesting geese. At the far end of the lake is a feeding station, so that the wildlife does not go far in search of food, and keeps them out of the grain fields.

Ewing Moraine was formed by glaciers from the ice age, creating Ewing Lake wetlands. At the Kerbes Fish Pond, we discovered that it was not stocked with fish this year.

We then went on to Big Valley, north of Tolman Bridge where the Big Valley Jamboree will be held for four days in

1991. Bosco Homes bought 50 acres of land for the Jamboree and are expected to purchase another 300 acres in the future.

At Scollard we drove over the railroad where Bye Bye Blues was filmed a few years back. The train from Stettler that used that railway was the Canadian Western Railroad (C.W.R.).

Stopping at Tolman Bridge to have our lunch, we rested, explored the area then drove east crossing highway #56 east of Rumsey to the natural grasslands and aspen groves. It covers an area over a township in size. This is a natural habitat of rolling hills, and home to wildlife, and is now a designated Natural Area.

On the way back to Stettler we stopped at Lowden Lake by Fenn--at the flowing well and drank some fresh spring water. Here on the lake Ducks Unlimited had dammed off part of the lake, so the pond would have fresh water. Here, on the lake, the geese nests are built on stones and tires. It was interesting to see five white geese. We viewed numerous birds such as a Kestrel, Red-tailed Hawk, Yellow-headed Blackbirds, a loon, Greater Yellow Legs and many other varieties of water birds. Along the way we viewed through our binoculars, an Owl's nest way up in a tree and could see the young sitting on it. In the course of the day there must have been about 45 species of birds that we saw.

Stettler Field Trip - Left to right are: Nora Charles, Jerry Brunen (field trip leader) for Ducks Unlimited, Mary Lawec, Martha Kruger, Don Stiles, Jim Burrell and Jim Goodwin. (Photo: Ann Stefura)

In the evening we met again at the Centre for a pot lucksupper. Our guest speaker for the evening was Dr. Charlie Bird. With the help of his slides he commented on all aspects of wildlife and answered many questions. Many thanks to the Buffalo Lake Naturalists for providing the most delicious meal.

Author's Address:
Martha J. Kruger, Box 1086, Stettler, Alberta T0C 2L0.

NOTE:

Grande Prairie is now home to the Peace Parkland Naturalists. About 25 members have been enjoying regular Field trips and monthly meetings since December. The group has participated in the Christmas Bird Count, the Breeding Bird Atlas and local Environment Week activities. We also have members involved in the Natural Areas Stewardship Program. A monthly newsletter was started in April and the group hopes to incorporate as a society this fall. If you would like more information about this active new club please contact us at Box 1451, Grande Prairie.

Woodpecker Knockings

Kerry Wood

For more than twenty years pileated woodpeckers have been coming to our backyard feeding station, even well into the summer season. A piece of suet impaled on a nail-studded board has been hung on the power pole from April on, because the parents bring their yelping youngsters to the back fence. There the awkward looking fledglings are fed with regurgitated and sometime rancid fat.

All pileated activities are watched from our main kitchen window. On the colder days of winter the huge woodpeckers often remain on the main T-shaped suet feeder when I go out to do chores. They accept me in work clothing. A different matter when Marjorie and I get rigged up for a town trip. Off the birds fly with squawks of alarm, their scarlet topnotches flashing as they dodge between tree branches beyond the clearing. They are suspicious of all strangers, to the complete frustration of many a photographer friend. If a different car comes into our driveway, away they go.

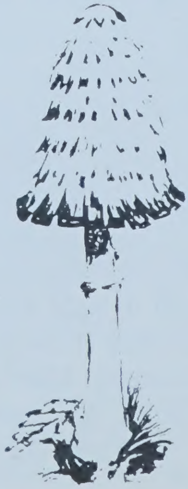
Recently they have become even more jittery, and with good reason. Twice a goshawk has swooped in with vicious intent, each time foiled by the speedy exits of the pileated pair. The gos apparently views our feeding station as a sort of supermarket, for it zooms in frequently. A few years ago we were watching a weasel feeding on a suet lump when a goshawk made a swift attack. The weasel dodged and dropped to the ground. By the time the goshawk had whirled back, the weasel was ready for it with bared fangs. After two or three turns above it at a safe height, the hawk decided the intended victim was not worth the risk.

Mushroom Delight

How may edible mushrooms will we find in neighborhood areas this season? During the dry spell of '89 we enjoyed inky and shaggy mane *Coprinus,* two feeds of *Agaricus campestris,* lots of *Lactarius deliciosus*--which we do not find delicious despite the name--and some September puffballs. There were a number of the beautiful, poisonous *Amanitas* along certain pathways. Perhaps the most attractive in appearance of this group is the *Amanita muscaria.* My mentor once told me that in the eighteen hundreds some European farmers dunked this variety in home brew to add kick to the drink. She added that some of them probably woke up dead.

Mice, squirrels, and rabbits all sample edible mushrooms along the trails, but instinct makes them avoid the lethal types. Red squirrels suspend red-topped *Russula* mushrooms from tree forks in July to dry for use on the mild days of winter. I have tried the variety they were collecting; it was much too peppery to enjoy. The best of mushroom treats, the morels of May, do not thrive here. Once we found a wonderful patch in a grove of poplars at Sylvan Lake and relish the memory.

Author's Address:
R.R. #2, Red Deer, Alberta T4N 5E2


SHAGGY MANE

New Record for Orobanche uniflora L. (Orobanchaceae), or Small Broom-rape, in Alberta

Joan A. Williams

While on a field trip to Bow Valley Provincial Park on June 21, 1990 with the Botany Study Group of the Calgary Field-Naturalists Society, a fellow botanist, Kathleen Wilkinson, noticed two small clumps of pinkish-coloured plants growing along the Many Springs Trail. A closer look revealed them to be Small Broom-rape *Orobanche uniflora*, a species considered rare* in Alberta; peripheral, at the northwestern limit of its range (Wallis et al., 1987). Bow Valley Provincial Park is located along the Bow River about 80 km west of Calgary, in the Bow Valley corridor. This species has not been previously sighted within the park (Wallis & Wershler, 1972; Cotton wood Consultants, 1981; Williams, 1988; 1989), nor has it been recorded for Kananaskis Country (Corbin, 1983).

Small Broom-rape ranges from British Columbia, southwest Alberta, southwest Saskatchewan, Ontario to Newfoundland, south to California, Texas and Florida; it is widespread outside Alberta (Wallis et al., 1987). In Alberta, it occurs in the Montane ecoregion, in moist woods, thickets and grasslands (Wallis et al., 1987), and may reach elevations up to 2300 m (Kuijt, 1982). In the Saskatchewan Cypress Hills, it has been found on rocky slopes at edges of woods (Maher et al., 1979). It is known from a few sites within Waterton Lakes National Park, from the Westcastle area in the Crowsnest Forest Reserve, and from the Elbow River at Calgary. It is also considered rare in Saskatchewan, Alabama and Iowa, endangered in S. Carolina, and threatened in Wisconsin (Maher et al., 1979).

Also known as the One-flowered Cancer Root, or Naked Broom-rape, Small Broom-rape is a slender, rather inconspicuous plant somewhat resembling a flesh-coloured upside-down pipe. The leafless, hairy pedicels each bear a single curved long flower; petals are whitish-mauve, with a bright yellow throat and rounded, ciliate-margined lobes. Stalks vary from 5.5-9 cm in height, with flowers about 2 cm in length.

Ours is var. *minuta* (Suksd.) Beck., and is one of only three *Orobanche* species found in the province. Members of the *Orobanchaceae*, or Broom-rape family, are of interest, because they lack green foliage, and parasitize the underground parts of many other plants. Small Broom-rape most commonly parasitizes *Saxifragaceae* and *Sedum* (Kuijt, 1982); some specimens at the University of Lethbridge herbarium showed it to also be parasitic on *Artemisia* and *Heuchera* (Bain, pers. comm.).

The clumps found at Many Springs consisted of about 15-20 flowering stalks each, and were growing in moist gravelly soil. It could not be determined what species the *Orobanche* was parasitic on; grasses, sedges, sow thistle and young poplar saplings were observed in the immediate vicinity. Photographs were taken. The Chief Park Interpreter Eric Kuhn, and Kananaskis Country Environmental Research Co-ordinator Gavin More, were contacted and I recommended that additional photographs be taken, and that all mowing and spraying of trail edges be discontinued in the area until the *Orobanche* has set seed. The site was revisited June 27th with the co-ordinator, to discuss trail management as it relates to protection of rare species. At that time, it was noted that most of the Orobanche flowers were dying and shrivelling up.

A few days later, two additional clumps were found near the first site by park staff. The area was again revisited by the author July 5th, and it was observed that about 50 percent of the flowers in these two clumps were still in bloom. With the permission of Alberta Recreation & Parks, specimens were collected; these have been mounted, and will be donated to the University of Calgary herbarium.

Examination of mounted specimens at the University of Calgary herbarium revealed one Alberta record, from a dry sandstone bank along the Elbow River, at Calgary. The University of Alberta herbarium turned up 6 Alberta records, from 4 sites within Waterton Lakes National Park, and one site along the Westcastle River in the Crowsnest Forest Reserve (McBain, pers. comm.). The University of Lethbridge herbarium had 10 additional Alberta records, 8 of which were from Waterton Lakes National Park, and 2 from the Westcastle area (Bain, pers. comm.). Packer's (1983) distribution map for the species also shows a dot in the Canmore-Seebe area. As this location does not match that of any specimens examined in major herbaria of Alberta, it is probably based on collections at either the National Museum, Ottawa, or the Department of Agriculture Herbarium, Ottawa.

This year's sighting in the Bow Valley may well be the most northerly record for the province. It marks only the third recorded location for the species outside Waterton Lakes National Park, and is the first recorded sighting in Alberta since 1981.

Part of the reason for Small Broom-rape's emergence this year, may be due to the wet, late spring. Many other species not seen over the last decade were also found in abundance this year, including several species of orchids, and the western wood lily *Lilium philadelphicum.* Clustered Broom-rape *Orobanche fasciculata* was observed at several sites throughout the park, though considered locally rare in the past (Williams, 1988). Visitors to the park, as well as park staff, have commented on the incredible profusion of flowers this year in the region. The seed of species like Small Broom-rape must be viable in the soil during extended dry periods then, until such climatic conditions occur that allow successful germination.

Comparison of aerial photographs of the park from the 1950's through to the present, indicate that a general drying trend is occurring in the region. Many species with proportionately high relative abundances in 1972 (Wallis & Wershler, 1972), showed a marked decrease in relative abundance by 1988 (Williams, 1988). This spring's moist growing conditions may have helped preserve the rare *Orobanche uniflora;* it will be interesting to see whether this species is sighted in the park over the nest few years, particularly if more droughty conditions recur.

The occurrence along the Many Springs Trail reaffirms the need for sensitive management practices even when the existence of a plant is not suspected. As a result of a vegetation monitoring program at Many Springs in 1988, a recommendation was made to prohibit trail mowing and spraying with herbicide during critical flowering and seed setting stages (Williams, 1989). This stemmed from the fact that an extremely high number of orchid, and other significant plant species, grow immediately along the trail edges in this area. Although maintenance crews have shown some discretion, they partially mowed segments of the trail after the Small Broom-rape was found, despite a directive from the District Manager. Luckily, the area in question was missed.

* ''rare'' vascular plants are defined as those restricted to a small area (e.g. Waterton Lakes National Park and vicinity in southwestern Alberta) or sparesely distributed over a larger range (e.g. 5 or fewer reported locations in Alberta)(Packer & Bradley, 1984)

Acknowledgements

I am most grateful to Louise McBain at the University of Alberta, and to John Bain at the University of Lethbridge, for examining mounted specimens of *Orobanche uniflora* and relaying that information to myself. Studies of the flora of Bow Valley Provincial Park have been conducted by the author under employment as an Environmental Specialist with the Operations Branch of Alberta Recreation & Parks, Kananaskis Country.

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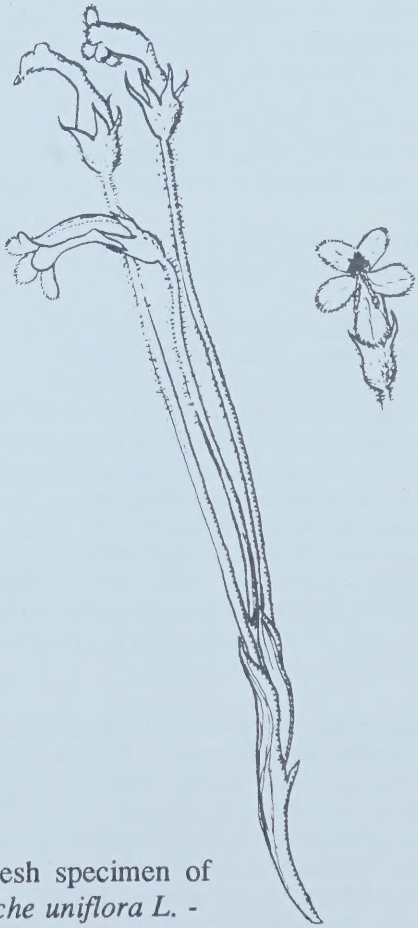
Author's Address:
c/o 2009 - 48 Avenue S. W. Calgary, Alberta T2T 2T6.



From fresh specimen of *Orobanche uniflora L.* - Flower head approx. 1.5X.
(Sketch: Joan Williams)

May Species Count Locations and Participants, May 27-28, 1989

Waterton - Locations: Waterton area, roads to Belly R. campsite, Cameron L., park entrance to townsite, Red Rock Canyon; trails to Bertha L. (to lower falls), Vimy, & Crandell L. Participants: Teresa & Doug Dolman, Gerry Hoffman, Lois McKillop, Sheila Petherbridge, Gordon & Hazel Ross, Shirley Sillito, Janice & Fraser Smith, Joyce, Jessica & Paul Wilkinson.

Lethbridge - Locations: Lethbridge area, Henderson L., Botteril Bottom Park, Ridge Reservoir, Tyrrell L., Rush L., Agriculture Canada Research Stn., Weatherup property, Goal L., ADRI grounds, Russell farm, Alexander Wilderness Park, Fort Whoop-Up cairn area, Peenaquim Park & sewage plant area, Luco & Rollingson river bottom areas. Cardston: townsite and area, including farmland, hedges and sloughs. Claresholm: 35 km radius around town, including Porcupine Hills, farmland, farm groves, sloughs & lagoon. Participants: Bill & Anne Brown, Teresa & Doug Dolman, Frank & Alice Harper, Bob Hall, George & Betty Luco, Lois McKillop, Sheila Petherbridge, Alan Roberts, Gordon & Hazel Ross, Doris Rhodes, Katharine & Frank Russell, Mary Thomson, Joyce & Paul Wilkinson. Cardston: Shirley Sillito.
Claresholm: Ruth & Jason Atwell, Hazel Hudson, Grace Norgard, Al Williams.

Cypress Hills - Locations: Cypress Hills area, Spruce Coulee, Reesor Lake and road, Highway 41, Ferguson Hill, Murray Hill road, Beaver Creek trail, Horseshoe Canyon trail, north shore of Elkwater Lake, south shore of Elkwater Lake, Graburn road. Police Point road, Battle Creek to Saskatchewan, Elkwater townsite west of causeway, Elkwater townsite east of causeway, Mitchell Creek trail, Golf course road, Thelma road south of the park. Compiler: Liz Savoy. Participants: Heather Broatch, Kelty Otto, Mike O'Shea, Keith Bocking, Mark Dell, Marie-Andree Gingeras, Rob Gardner, Tom Trott, John & Marty Dewalt.

Medicine Hat - Locations: Medicine Hat and surrounding area. Compiler: Dennis Baresco. Participants: Janet Adams, Grant Bray, Linda Canham, Kevin & Ann Corcoran, Eileen & Ted Cowtan, Bob Frew, Rob & Corlaine Gardner, Lex Karne, Valerie Martins, Peter Mehrer, Cynthia & Cathlin Mutch, Garry Newton, Mr. & Mrs. J. Newton, Mark Oxamitny, Michael O'Shea, Paul Strickland, David Tate, Bill & Ruth Tidy, Ben & Michael Velner, Mark & Dan Schiebelbein.

Calgary - Locations: Calgary area, Wyndham Park, south facing escarpment north side of Bow River. Compiler: Gwen Simpson. Participants: J. Bargman, R. Clarke, D. Collister, S. Cox, O. Droppo, D. Elphinstone, B. Giles, H. Giles,, J. Gill, J. Goldsmith, B. Greggs, W.G. Kerr, C. Hitchon, A. Holder, C. Hunt, J. Jamieson, K. Jones, S. Kassai, E. Kethler, J. McFaul, B. McKitterick, J. Podlubny, K. Power, M. Power, P. Roxburgh, P. Sherrington, A. Slater, E. Spalding, D. Stiles, S. Visser, J. Washbrook, B. Wilson.

Banff - Locations: Banff-Canmore and Yamnuska area. Compilers: Diane & Mike McIvor. Participants: Joyce & Keith Cole, Morag Dornian, Peter Duck, Alan & Tineka Hipkins, Bob & Mary Smith, Eva & Kate Zidek.

Red Deer - Locations: Red Deer area, Sylvan Lake, Pine Lake, Red Deer River, Slack's Slough and several small potholes, town of Sylvan Lake, and several farms. Compiler: Myrna Pearman. Participants: Jim Potter, Herb & Helen Harris, Beth & Albert Peck, Bill & Adeline Nesbitt, Minnie Cunningham, Alvin Goetz & Doreen McDonald, Tom Pierce & Fred Anderson, Marie Pijeau, Murray Mackay, Jim Allen.
Stettler - Locations: south and east of Stettler to Fritz Hill district, north and west to Old McDonald's campsite on Buffalo Lake and south and west to McKenzie Crossing on the Red Deer River. Compiler: Lloyd Lohr. Participants: B. & J. Burrell, B. Clarke, B. & S. Fix, T. Grafe, G. & W. Hewlett, E. Kirtley, G. &. G. Neill, H. Peterson, B. Smith.

Edmonton - Locations: Edmonton area, Beaverhill Lake south & west shores. Elk Island National Park (including Wood Bison area), Westlock (Lange's Farm), Manola & Rossington, South Cooking Lake, Looking Back Lake (Sherwood Park) & acreage of Dave & Kim Allan, Glenevis. Compiler: Jim Lange. Participants: Kim Allan, Jean Burgess, Dick & Pat Clayton, Dave Cuthiell, Bob & Jan Carroll, Dick Dekker, Dierdre Griffiths, Peter Heron, Stefan Jungkind, Dave Lawrence, Harry Pegg, Dave Pick, Claire Radke, Bob, Diane, Lynn & Nancy Reckow, Carol Smith, Ken Walker.

Grande Prairie - Locations: Grande Prairie area, Bear Lake, Hermit Lake, Lake Saskatoon, Cutbank, and northwest of Wembley. Compilers: Gavin & Ellen Craig.

1989 May Species Count

SPECIES RECORDED FROM MORE THAN FIVE LOCALITIES

SPECIES	WATE	LETH	CYPR	MEDI	CALG	BANF	REDD	STET	EDMO	GRPR
Common Loon	6		4		8		1		6	1
Horned Grebe		5		1	72		1	24	3	2
Red-necked Grebe			18		66	1	14		185	1
Eared Grebe		272		14	85		22	3	1092	190
D.Cr. Cormorant		40	4	14	276		1		20	
Great Blue Heron	5	8	2	27	39		1	2	11	
B.-cr. Night Heron		3		1	17			1	33	
Canada Goose	400	1268	49	221	1168	4	106	94	122	26
Green-winged Teal		6	6	1	55	4	56	13	31	9
Mallard	19	262	47	169	513	9	244	291	117	157
N. Pintail		105		68	210		23	18	16	74
Blue-winged Teal	4	172	10	30	685	4	89	139	104	12
Cinnamon Teal	1	13		1	67	6	4	6	5	
N. Shoveler		123		47	237		62	47	49	49
Gadwall		101		16	96		11	41	37	91
American Wigeon	2	36	29	6	77		6	13	23	136
Canvasback		153	4	36	114		27	26	5	72
Redhead		138	2	16	88		46	34	59	26
Ring-necked Duck	33	5	9		40	2	12		27	2
Lesser Scaup		112	12	10	289	6	71	73	177	814
Wh.-winged Scoter		3	4		4		6		1	350
Common Goldeneye		9			45		33	1	32	3
Barrow's Goldeneye	15	2			10	2	2		6	
Bufflehead	2	4	3	7	40	3	32	9	59	28
Common Merganser	34	64		28	174	2	26	15		1
Ruddy Duck		124		7	51		26	1	136	55
Northern Harrier	2	17			16		1	5	5	6
Swainson's Hawk	1	82	2	21	63		9	1		
Red-tailed Hawk	2	33	8		83	1	35	44	31	12
Amer. Kestrel	1	17		17	22		9	4	9	1
Merlin		4	1	3	5		2	2	2	
Gray Partridge	5	17		12	10			2	4	5
Ring-necked Pheasant		14		18	12		1	3	1	2
Ruffed Grouse	2	2	6		22	5	10	4	10	8
Sora Rail		2	2	1	30	2		5	11	
American Coot	1	99	9	19	352	2	29	20	216	8
Bl.-be. Plover		3		120	70			4	130	8
Killdeer	5	79	10	38	119	2	13	25	33	6
Amer. Avocet		30		4	152		15	25	103	
Willet		20	2	31	41			4	16	
Spotted Sandpiper	8	36	19	19	70	9	17	9	12	2
Common Snipe	4	4	10		42	6	6	2	26	5
Wilson's Phalarope	2	449	4	6	472	3		35	200	
Franklin's Gull	7	66	2	147	371		15		122	525
Ring-billed Gull	16	215	59	597	447		105	16	9	61
California Gull		9	15	79	1565		42	5	4	18
Common Tern	1	24		94	25		2	2	12	
Black Tern		47	1	3	204		34	5	362	72
Rock Dove		141		362	75		118	35	7	6
Mourning Dove		66	13	48	18		2	1	1	
Great Horned Owl	1	21		2	9		3	3	3	
Belted Kingfisher	4	4	1	7	9			2		

Legend:

WATE	Waterton Lakes
LETH	Lethbridge
CYPR	Cypress Hills
MEDI	Medicine Hat
CALG	Calgary
BANF	Yamnuska
REDD	Red Deer
STET	Stettler
EDMO	Edmonton
GRPR	Grande Prairie

	WATE	LETH	CYPR	MEDI	CALG	BANF	REDD	STET	EDMO	GRPR
Yellow-bellied Sapsucker		1	3		9	1	11	3	15	3
Downy Woodpecker		5		3	5		5	2	5	2
Hairy Woodpecker	1	2			4		5	4	13	2
Common Flicker	8	27	4	11	48	7	5	4	4	3
W. Wood Pewee	1	9	5	7	38		1		10	1
Least Flycatcher	2	13	28	4	186	5	33	13	107	
Eastern Kingbird	2	74	3	55	56		11	7	13	1
Tree Swallow	27	34	27		821	1	259	51	641	17
N.Rough-wing. Swallow	25	26	6	9	242		2	2		
Bank Swallow	4	293	45	185	742		66	136	256	
Cliff Swallow	500	293		165	700		10	110	62	1352
Barn Swallow	2	131	15	34	213		68	140	84	19
Black-billed Magpie	7	132	19	289	306		40	63	55	13
American Crow	16	81	41	46	261	2	78	110	64	19
Common Raven	4	7			20	4	1		1	4
Black-capped Chickadee	5	15	33	8	86	1	30	8	21	4
Red-breasted Nuthatch	2		10	1	22	5	1		3	
House Wren	8	65	11	63	96		15	22	44	
Ruby-crowned Kinglet	24	4	42	6	39	16	1		6	
Mountain Bluebird	6	49	17		28		77	46		
Swainson's Thrush	2	107	4	13	61		1		4	
American Robin	95	340	114	359	347	16	94	59	108	12
European Starling	40	687	10	696	745	5	87	150	38	9
Warbling Vireo	4		3	2	25	3	1	1	9	
Red-eyed Vireo		4	5	1	10		8	6	26	
Yellow Warbler	36	55	21	128	182	1	26	38	67	8
Yellow-rumped Warbler	10	1	75	1	58	14	6		12	
American Redstart	1	5	3	3	8		1			2
Common Yellowthroat	1	11	32	8	12	2		4	6	
Wilson's Warbler	5	3		1	4	2		1		2
Chipping Sparrow	2	121	54	94	196	19	18	8	20	
Clay-color Sparrow	7	36	23	84	302		36	61	70	2
Vesper Sparrow	3	75	61	4	53	2		16	3	5
Sav. Sparrow	2	79	29	10	180		18	13	41	34
Song Sparrow	2	22	4	3	29	3	13	32	26	3
White-throated Sparrow			2		39		23	3	34	3
Wh.-crowned Sparrow	23	7	25	1	10	5	3			4
Dark-eyed Junco	13	8	45		25	8	5		1	
R.-winged Blackbird	32	372	126	804	568	21	156	204	540	47
Yel.-headed Blackbird		334	32	85	342		20	50	57	1
Brewer's Blackbird	6	131	56	116	209	6	81	97	30	20
Common Grackle		17		78	16			1	4	5
Brown-headed Cowbird	39	102	23	53	164	15	41	12	93	2
Northern Oriole		44	4	32	64		47	34	71	5
Am. Goldfinch	11	45	17	40	37		20	7	15	
House Sparrow		355		757	204		22	75	18	1
Total species	65	93	71	81	98	43	87	82	90	68
Total individuals	1561	8751	1444	6627	16642	237	2836	2707	6382	4449

1989 May Species Count

SPECIES RECORDED FROM FIVE OR FEWER LOCALITIES

	WATE	LETH	CYPR	MEDI	CALG	BANF	REDD	STET	EDMO	GRPR
Pied-b. Grebe	2	1			15				6	
Western Grebe		5			28					17
Amer. Wh. Pelican		78		48	275				4	
Amer. Bittern					1	1			2	
Trumpeter Swan			1							57
Lesser Snow Goose	1									
Wood duck				1		2				
Eurasian Wigeon										1
Greater Scaup					2					
Harlequin Duck					5					
Surf Scoter										3
Hooded Merganser				2	4					
R-breasted Merganser		1			2			1		
Turkey Vulture								1		
Osprey	1	2			4		2			
Bald Eagle						1		1		1
Sharp-shinned Hawk			3							
Cooper's Hawk					1					
Northern Goshawk					2					1
Br.-wing. Hawk									1	
Ferruginous Hawk				1	5			1		
Rough-legged Hawk			1					1		
Golden Eagle	3	1								
Peregrine Falcon					1				1	
Prairie Falcon		2			3			2		
Wild Turkey			8							
Sharp-tailed Grouse								2		
Sandhill Crane										2
Black-necked Stilt					2					
Le.-go. Plover									25	79
Semipalm. Plover				6					1	10
Greater Yellowlegs		4			2	1		2		
Lesser Yellowlegs					2			4	4	59
Solitary Sandpiper		4			4		8	1	1	
Upland Sandpiper			3		9					1
Whimbrel									1	
L.-billed Curlew		15		2	5					
Marbled Godwit		17		30	52			7	55	
Ruddy Turnstone									2	
Red Knot									17	
Sanderling					2		2	100		1
Semipal. Sandpiper		2			3			39	198	118
Least Sandpiper		4			2				2	45
Wh.-rump. Sandpiper									3	
Baird's Sandpiper					6					12
Pectoral Sandpiper		2			1				10	590
Stilt. Sandpiper									239	5
Western Sandpiper										20
S.-b. Dowitcher									2	
L.-b. Dowitcher					61					349

	WATE	LETH	CYPR	MEDI	CALG	BANF	REDD	STET	EDMO	GRPR
R.-necked Phalarope					20		9		500	
Bonaparte's Gull				2			8		11	1
Mew Gull										7
Herring Gull				3	15					4
Gull sp.	5	5000		200						
Forster's Tern				2	39					
Ringed turtle dove				1						
Burrowing Owl		9								
Barred Owl					1				1	
Great Gray Owl					2					
Long-eared Owl		1	1							
Short-eared Owl					5			1	1	
N. Saw-whet Owl		1					8			
Common Nighthawk		1				1		3	2	
Ruby-throated Hummingbird	1				2		2		6	
Calliope Hummingbird	2									
Rufous Hummingbird	2	2			3	1				
Red-naped Sapsucker	2		1		1					
Three-toed Woodpecker					1					
Pileated Woodpecker					4	1	3	4	2	
Olive-sided Flycatcher	2	1	1		5				3	
Alder Flycatcher					4				4	
Western Flycatcher		1								
Great Crested Flycatcher							1		1	
Empidonax Flycatcher				2						
Eastern Phoebe					10		1	1	8	
Say's Phoebe		2			3					4
Western Kingbird		27	1	14	15					
Horned Lark		281		96	41				1	
Purple Martin							2	17	8	
Violet Green Swallow	2				5	1				
Gray Jay	5	2				1			3	
Blue Jay					14		11	1	19	7
Mountain Chickadee	1	2	1		5	1				
Boreal Chickadee					31		1		2	
White-breasted Nuthatch					4		6		4	
Brown Creeper					1					
Rock Wren		2		2	2					
Marsh Wren					5				16	
Golden-crowned Kinglet	18		10		10	5			2	
Townsend's Solitaire	1	7			1					
Veery	3	1		2	8					
Gr.-ch. Thrush		1							2	1
Hermit Thrush	1				11		1		2	
Varied Thrush	19	1			10					
Gray Catbird	2	7		3	10			3		
Brown Thrasher		2		42	1					
Water Pipit					2					30
Sprague's Pipit		2	4		14					
Cedar Waxwing		26	2	52	9		23			
Loggerhead Shrike					1					
Solitary Vireo					3	2			1	
Philadelphia Vireo					1				4	
Tennessee Warbler				1	28	1			43	
Or.-cr. Warbler			5		24					
Magnolia Warbler		1	1							

	WATE	LETH	CYPR	MEDI	CALG	BANF	REDD	STET	EDMO	GRPR
Townsend's Warbler	1									
Blackpoll Warbler		2			3				12	3
Blk.-and-wh. Warbler									1	
Ovenbird			6		8	1			9	
N. Waterthrush	2			1	6	5				
Con. Warbler					1					
Mourning Warbler					2				2	
MacGillivray's Warbler	3		9							
Canada Warbler				1						
Y.-breast. Chat				1						
Western Tanager	3				1		1		1	
R.-b. Grosbeak					20	2	13		17	
Bl.-head. Grosbeak	1	1								
Laz. Bunting		2								
Ru.-si. Towhee		7	9	30				3		
Tree Sparrow		1	2	5						
Brewer's Sparrow							1			
Lark Sparrow		6	1	69						
Lark Bunting				9						
Grasshopper Sparrow			2							
Le Conte's Sparrow					8			8	10	1
Sharp-tail. Sparrow									3	
Fox Sparrow						1				1
Lincoln's Sparrow		1			22	4			9	2
Swamp Sparrow									4	
Harris' Sparrow										1
Lapland Longspur										2
Ches.-col. Longspur		41								
Bobolink			3						5	
Western Meadowlark		103	39	229	70			16		
Rusty Blackbird		34			2					
Purple Finch					16		15		12	4
Cassin's Finch	2									
Red Crossbill		3								
White-winged Crossbill		6	2							
Pine Siskin					41		4	2		
Evening Grosbeak	2	2			10					3
Total species	26	50	24	29	81	18	21	24	55	34
Total individuals	87	5727	116	857	1080	32	122	221	1304	1442

Preparation of species tables: Robyn Shortt.

1989 May Species Count

	WATE	LETH	CYPR	MEDI	CALG	BANF	REDD	STET	EDMO	GRAN
WEATHER:										
May 27, 1989										
Precipitation (mm)	4.4	10.6			7	5cm				
	Jun. 3					Snow				May 20
Cloud Cover (%)			Scat.'d					Cloudy		Partly Cloudy
Wind direction	NE	NW	W					NE		NW
Wind speed (km/hr)	7	Gusty	3		High					Light
Temperature(C)	3-13	3-15	8		0-8	Cold		12		4
May 28, 1989										
Precipitation (mm)	0	17.6		wet			0			
	Jun. 4									
Cloud Cover (%)							40-90	Some cloud		
Wind direction	S	NW		Strong				S		
Wind speed (km/hr)	20			1-7						
Temperature (C)	6-23	-1-4				Warmer	1-15	2-12		
TEAM EFFORT:										
Hours walking	9	44.5					34.5	14.5		2.5
Hours driving	31	41					6	25		6
Total Hours	40	85.5	31.5	120			40.5	39.5		8.5
Distance walking (km)	20	54	32.2	55			42	19.2		2
Distance driving (km)	235	643	102.6	470			85	302.4		30
Total distance (km)	255	697	134.8	525			127	321.6		32

F.A.N. News

Alberta Bird Atlas Project

The position of Executive Assistant was filled August 1, by Petra Stubbs.

Petra is a recent graduate of the University of Alberta (B.Sc. Zoology), whose interest in birding was initiated during her first field season, (where you may have run into her) 'sloshing' around Beaverhill Lake.

Since then Petra has been involved in several birding projects, including banding and censusing at the Beaverhill Bird Observatory, atlasing breeding bird squares, and volunteering with Christmas bird counts.

More recently, she spent the summer as a C.W.S. employee, working on the Prairie Falcon Project in southern Alberta.

Petra will be holding the fort at the office and would be delighted to hear from you! If you have any questions about the project or are willing to tackle a square in 1991, please feel free to drop by the office (Provincial Museum) or give us a call (453-9163)!

LET'S "GET IT DONE IN '91!"

Dave Adie, who supported the Atlas as Executive Assistant for several months during 1990 while staffing arrangements for the project were going through a transition, reports that he has enjoyed a fruitful summer -- ''loafing and gardening''.

With the coming of fall, he will be turning an eye toward gainful employment in the administrative field, but has, meanwhile, been actively pursuing a sideline: Chef-for-a-Day. Dave enjoys cooking -- his speciality is Chinese food -- and for those who are less talented in the kitchen, he will gladly come in and whip up a delicious dinner while you and your guests relax and discuss more important matters.... like ''what squares are you planning to atlas in 1991?''

Thank you Dave. Best wishes for the future.

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Note:

The Athabasca River, within Jasper National Park, was recently admitted into the Canadian Heritage Rivers System. Barbara Levesque attended the dedication ceremony on behalf of F.A.N. and she spoke with Don Gibson from CHRS, after the ceremony. He seemed optimistic about Alberta becoming a participating member of CHRS and he urged F.A.N. members to continue to promote the idea in political circles. Barbara accepted a citation in recognition of F.A.N.'s collaboration on the 1988-89 Annual Report for CHRS. The report won an honourable mention from the Information Services Institute in the category Annual Reports: Illustrations. CHRS used the drawings and words of participants in F.A.N.'s 1989 Poster/Essay Contest for elementary schools.

The second Flowing to the Future: Alberta Rivers Conference is now scheduled for April 25-28, 1991, at the Convention Inn, in Edmonton.

Rare Alberta Birds

Lloyd Bennett

Baird's Sparrow

The Baird's Sparrow is a little known resident of the prairies in southern Alberta. To find them, one must learn their song, which somewhat resembles the Chipping Sparrow's song. However, the Baird's song starts out with 2 or 3 notes of sip followed by a dry trill for about a second. The trill is weaker than the Chipping Sparrow's song. Often from a distance only the trill can be heard. Their preferred habitat is tall grass, which may be areas of foxtail near sloughs, areas of prairie with a mixture of rose bushes and tall clover and occasionally they are found in short grain fields. They are never conspicuous, even while singing, since they stay close to the ground most of the time, and they never allow close approach. They do not arrive until late May; my earliest record is May 22, but often it is early June before they are found. They can be found singing until late July, when the young are probably fledged, and only occasionally have I seen them up to late August. Usually only one or two pairs are found in the same area, but twice I have found 4 or 5 singing at once. Also, they may not be found regularly in the same area every year; some years they may be almost absent.

Pied-billed Grebes

I have recorded them in small numbers in the Taber area from 1980 to 1983, usually before or after the breeding season, and I found no young in these years. But since 1984 I have found both large and small young in some locations in the area. One area is the southwest corner of Fincastle Lake, as well as most of Taber Lake. In 89 I found at least 8 birds in a Ducks

Unlimited pond about 7 miles north and 2 miles east of Taber; some of these were large young. This is the largest number that I have found together. Sometimes they occur on small lakes before or after breeding season; they prefer to nest in lakes with thick growths of cattails or bulrushes. The earliest date I have recorded them is Apr. 24; the latest is Nov. 14. They start to move away from breeding areas during August, and are often found in large lakes after this, occasionally remaining until lakes start to freeze up in October or November.

Connecticut Warbler

The Connecticut Warbler is a scarce migrant on the prairies; as with many warblers it is found more often in fall than in spring. It is quite similar in appearance to 2 other warblers; the Mourning and MacGillivray's. All 3 share the marks of a gray hood, yellow underparts, and brownish-green upperparts, so it is a challenge to separate them, especially in fall when the females and young can be very confusing. The Connecticut is safely identified at any season by its complete white eye-ring; the others have either a partial eye-ring or lack it altogether, also its hood is a lighter gray than the others, but this can be difficult to judge. I have found them in this area 4 times since 1982, the dates being from Aug. 17 to Aug. 27; I have not found them in spring. On all occasions they have been found in fairly thick shrubbery.

Author's Address:
Box 2501, Taber, Alberta T0K 2G0.

Book Reviews

Birds of the Canadian Rockies

By George W. Scotter, Tom J. Ulrich and Edgar T. Jones

Birds of the Rockies

by Holroyd and Coneybeare

Sprintime! We know what that means, the annual migration of a fresh crop of birding guides. And this spring brought two new editions: first, the very slick, Birds of the Canadian Rockies, by Scotter et all and, secondly, Birds of the Rockies, by Holroyd and Coneybeare.

Scotter's book presents 201 species (which allows him to say, ''...more than 200 ...'') of birds, with 230 photos and will be a delight for those who are in search of actual photos rather than illustrations. The photos, mostly by Ulrich and Jones, are of superb quality, no duds here. Each species has a descriptive paragraph that outlines key points to identifying and finding the bird, some natural history comments and, quite often, a description of its call.

There is no doubt that if you are looking for a top quality book, small enough to slip into a daypack, that will cover 90% of the birds you are likely to encounter on your mountain hike, ramble or drive, then this is the book. Its major drawback, and I consider it a serious drawback, is the price, a hefty $22.95! To me that is just too much and will, I'm sure, make people think twice before picking one up.

In the right price department at $9.95 we find, Holroyd and Coneybeare's bird guide. This book, with skillful artwork by

Howard Coneybeare, illustrates 110 species of mountain birds and is of a size that you can put it in any backpack and forget about it until needed. Each species description provides some interesting nuggets of natural history information, the sort that make you go, ''Hmm, gee, I didn't know that ...'' For example did you know that Clark's Nutcracker can store up to 30,000 seeds in 7500 food caches? That Buffleheads live up to 13 years? That chickadees rest in tree cavities during the winter for up to 16 hours and that their temperature drops 6 C. And, well the list goes on.

The major drawback to Holroyd and Coneybeare is that only 110 of the potential 300 mountain birds are illustrated. However, it does include the most common birds you are likely to encounter.

Another factor to consider in purchasing either of these books is, how many bird books is enough? If all you want to do is identify that bird and you don't require gems of natural history information or real photos then, a comprehensive guide is still the best bet, rather than an area specific book.

It's going to be a tough choice to decide which book will fit your need the best and I am not going to make the decision for you! However, I will say that both books have been lovingly produced and would make excellent gifts and welcome additions to any birders library.

Keith McDougall

*****

Alberta Wildlife Viewing Guide

Alberta Forestry, Lands and Wildlife, 1990, Lone Pine Publishing, Edmonton, Alberta 96 pp.

Finally, a book to guide experienced and beginning naturalists and wildlife watchers in finding interesting new areas to visit. Do you want to see an avocet? Try Buffalo Lake, Tyrrell and Rush lakes, or Jessie Lake. A bobcat? Your best bet would be Writing-on- Stone Provincial Park.

This colourful, extensively illustrated book devotes one page per site to describe 61 different sites in 8 regions. Each is described in terms of its plants and animals. A map locates the site and at least one photo and either a second photo or a pen and ink sketch complement the text. A series of symbols shows, at a glance, the highlights of the area as well as the facilities. A contact telephone number or address is provided for further information.

The Wildlife Viewing Guide also contains travelogues for the Banff-Jasper Highway and Highway 2 between Edmonton and Calgary, a list of the top 50 wildlife species in the province and where they might be seen, and a directory of organizations to contact for further information.

Yes, the Wildlife Viewing Guide puts the knowledge of a widely scattered group of well-versed wildlife watchers into the hands of anyone who would like to explore beyond the familiar haunts. From this perspective, the guide is wonderful.

Yet, as one reads through the book, that feeling of euphoria is chipped away at bit by bit. In some of the site descriptions the obvious is ignored but the rare and unlikely to be seen species are highlighted. An example is the write up of the Gaetz Lakes Sanctuary in Red Deer. Bicknell's Geranium is cited as a wildflower found there. Not so, according to local naturalists and wildflower enthusiasts. But the Yellow Pond Lily, near the southeastern extent of its range and easily seen, is not mentioned. This is not an islolated example.

The travelogues are a super idea -- how often do we drive Highway 2 without noticing the rich wildlife mixed with agricultural land. It is unfortunate however, that there is nothing of interest between Red Deer and just north of Calgary. I guess that I'll have to keep my eyes on the road from now on and ignore numerous coulees, owls' nests, and varied hawk population.

The Guide possibly suffers more from omission than anything and the author, who's anonymous, points out in the introduction that this is a first attempt hopefully to "be succeeded by larger, more comprehensive editions..." It is curious to me why Alberta's Natural Areas, except for a token few, were not included in this volume. Perhaps this will be rectified in the next edition.

Although the guide has problems, I would still recommend it to Albertans and our visitors for the valuable information it does contain. See you watching wildlife soon!

Anna Robertson

*****

Manual of Plant Species Suitability for Reclamation in Alberta -- 2nd Edition

You have an area with sandy, gravelly soil. It has been disturbed. Perhaps a pipeline was installed, or a road has been rerouted; now you want to reclaim the site. What can you plant?

According to the Manual of Plant Species Suitability in Alberta, Sheep Fescue (Festuca ovina L.) would be a good choice at any altitude from gravelly prairies to alpine slopes, so long as there is not much clay in the soil.

The Manual also tells you it grows on acid mine tailings and other sites with heavy metal and hydrocarbon concentrations, that it withstands grazing well, but that it isn't an agressive colonizer.

Fifty two grasses, fourteen forbs, and thirty five trees and shrubs are dealt with in detail in this guide. A "How to Use It" section guides the user to a few of the most appropriate species. Then, three pages of detail per species, including illustrations, range maps, reclamation information, allows the right plants to be chosen.

Much of the information is American or from other foreign countries, but extensive Alberta references are provided too.

This manual was a project of the Alberta Land Conservation and Reclamation council (Reclamation Research Technical Advisory Committee). It was produced by Hardy BBT Ltd., 1989, and is referred to as report RRTAC 89-4.

It is available from: Publication Services, The Queen's Printer, 11510 Kingsway Avenue, Edmonton, Alberta T5G 2Y5, (403) 427-4952.

Jim Robertson

Cover Photo:

Juvenile Canada Goose in secluded Kinbrook Bay

(Photo: Clive Schaupmeyer)

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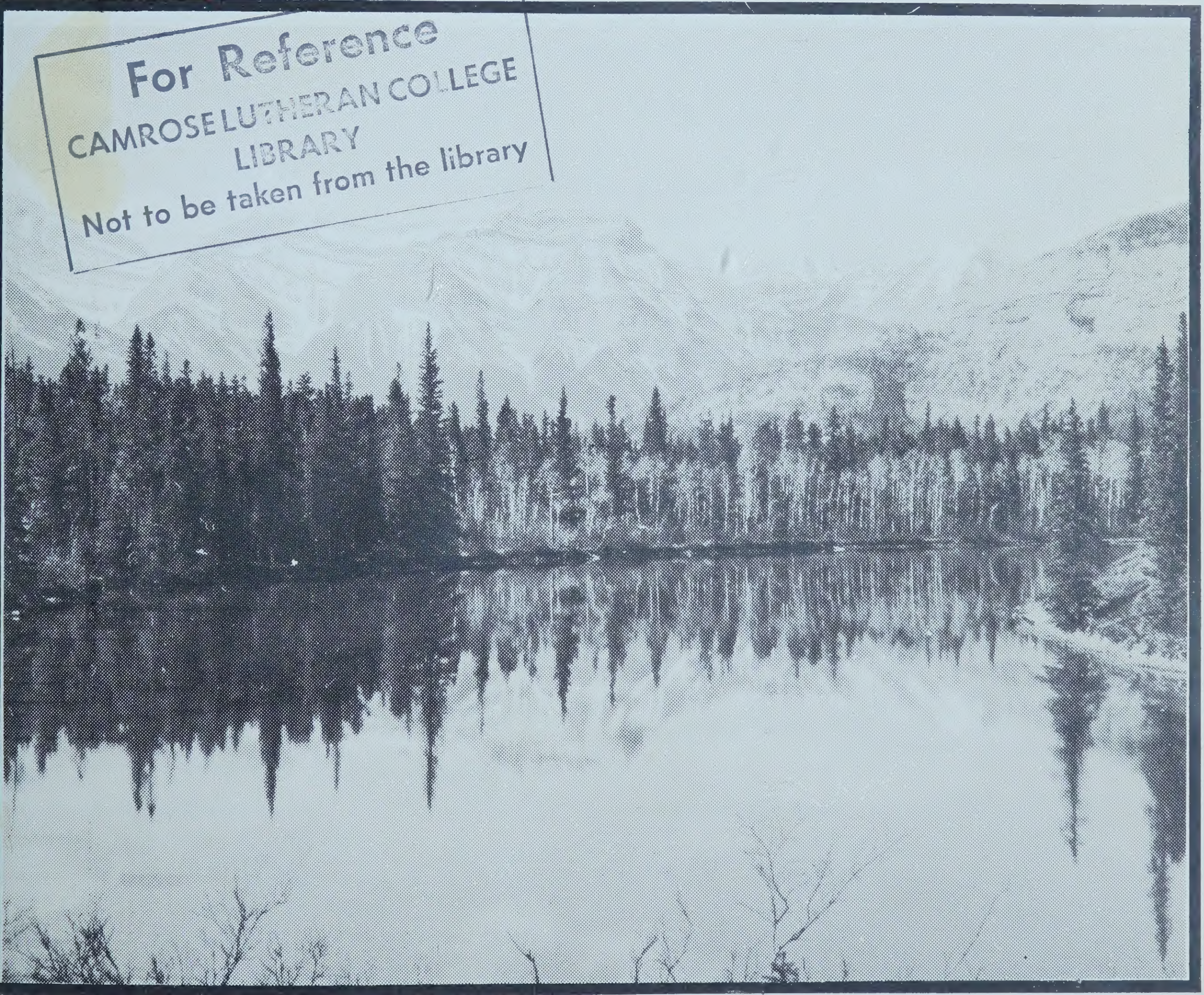

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The Federation of Alberta Naturalists is composed of natural history clubs from across the province. The aims of the Federation are:

(a) To encourage among all Albertans, by all means possible, an increase in their knowledge of natural history and understanding of ecological processes;
(b) To promote an increase in the exchange of information and views between natural history clubs and societies in Alberta;
(c) To foster and assist in the formation of additional natural history clubs and societies in Alberta;
(d) To promote the establishment of natural areas and nature reserves, to conserve and protect species, communities or other features of interest;
(e) To organize, or coordinate, symposia, conferences, field meetings, nature camps, research, and other activities whether of a similar or dissimilar nature;

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DEADLINES for F.A.N. project reports are:

Alberta Christmas Bird Counts, January 30, Andrew Slater, 152 Oakside Circle S.W., Calgary, AB T2V 4H2

May Species Count—Plants, July 15, J. Derek Johnson, Northern Forestry Centre, 5320 - 122 St., Edmonton, AB T6H 3S5; *—Birds and Mammals*, July 15, Don Stiles, 20 Lake Wapta Rise S.E., Calgary, AB T2J 2M9

Compiler cooperation is greatly appreciated.

President's Page

The Alberta Bird Atlas project, sponsored by F.A.N., is now coming up to its fifth season of a five year project (1986-1991) to collect breeding bird data in the province. I attended a Regional Coordinators Workshop on November 10, in Edmonton, where nearly all of Alberta's ten regional coordinators were together to discuss how they have been doing and where they are going in this final year. They are supported by a strong administrative staff: Albert Brule, Petra Stubbs and Carolyn Seburn, who work out of the provincial museum.

Some initiatives that are being worked on for the 1991 season include:

1. Advertising in birding journals for people who can do remote atlasing .
2. Hiring of 6 Canadian Job Strategy Program workers, along with a supervisor.
3. Encouragement of "square bashing" and field trip opportunities by local clubs.

Alberta Bird Atlas staff are busily compiling what has already been collected to assist regional compilers in determining which species need to be looked for in 1991 to fill in gaps.

There was some talk of extending the project another year, as the first season was only part of a season. However, it was decided to leave this decision until after the 1991 season to see if there really is a need.

The insert in this AN describes workshops at F.A.N.'s Annual General Meeting which are all geared in some way to the ABA project. I hope many of you can attend.

Recently F.A.N. directors have been presenting briefs at various environmental hearings. These include:

1. How to manage ecological reserves to the Advisory Committee on Ecological Reserves.
2. How to manage wetlands in the settled areas of the province to the Alberta Water Resources Commission.
3. To the Alberta Government's Panel on the Environment which has been touring the province.
4. On game ranching.
5. On diseased bison.

Watch for some of these, (or summaries) in future issues of the AN.

On behalf of F.A.N. I wrote a letter to our patron, Grant MacEwan, on the recent death of his wife. Here is the last paragraph of his reply:

"Glad to have your comments about the Alberta Bird Atlas and other aspects of your work. We try to follow your activities and I can assure you that although I have links with rather many organizations, none brings me more satisfaction and pleasure then my bond with the Federation."

Don Stiles, President

A Letter to Mr. Getty from Kevin Van Tighem

Dear Mr. Getty;

I just came back from a trip where I witnessed some of the worst logging management I have ever seen, which is quite a statement since I have been working on a temporary job assignment in B.C. over the past few months. I am not writing this letter so much to criticize as to offer suggestions and ask for change.

The area that I visited was the headwaters of Dutch and Racehorse Creek in the Oldman River watershed. The whole area is Forest Reserve and is being managed by the Alberta Forest Service. The guideline that they have in that area is that when the first cut is 2 meters tall, the second cut can commence. At present, it is the second cut that is underway. Somebody did some creative accounting to suggest that the first cut was successfully regenerating since those first cuts look like mountains with mange: scattered clumps of un-vigorous small spruce and pine. I understand that the Forest Service has resorted to aerial spraying of fertilizer to try and get these trees to grow.

The tragedy is that this was a truly beautiful and special place, and could have been logged in a responsible manner. What is in fact happening (and I have this from your Fish and Wildlife staff) is that big game populations are now threatened by extensive and long-lasting loss of thermal cover, Dutch Creek is filling with sediment to the point where wintering pools for trout have to be recreated with Bucks for Wildlife funds, and the scenery is forever marred.

There are policies working against policies in this area, at great unnecessary expense to the public purse and the health of our landscape. One agency has population targets for elk, another has production targets for timber, another has revenue targets for tourism, and all are supposed to put watershed protection first. In spite of Integrated Planning, there is no evidence on the ground, where it counts, of harmony among these objectives.

I suggest that what is needed is a Strategic Conservation Plan to set objectives that all agencies must work towards and justify their programs against. For example, specific broad objectives might be that all activities will be integrated to ensure no net loss of biodiversity; land and water management will create and maintain an environment conducive to high-quality recreational and aesthetic experiences; all projects and programs will be assessed for long-term (200-year) economic and environmental sustainability.

If these guidelines were in place, we might not see scarified 30% slopes above trout streams, huge clearcuts along recreational road corridors, uncontrolled off-road vehicle use to the very headwaters of side drainages, and unregenerated first cuts being used to justify extensive second cuts. We need forest management that serves all social and environmental needs, not just timber sales. We need timber sales, too, but they must be sustainable. I will not be convinced by any response you could send me that what I witnessed in upper Dutch and Racehorse creeks is sustainable. It clearly is not; again, this is not just my opinion. In fact, I can't urge you strongly enough to go see this place for yourself; I understand that John Zaozirny has seen it so you can check with him. It really is horrible.

From the standpoint of credibility, it should be clear to you that a great deal of the public suspicion and rejection of plans to turn our northern Green zone over to pulp companies is rooted in the fact that these horror stories exist. And while it's fair to say we have made mistakes in the past and shouldn't judge the future on the basis of them, there are two refutations of that position: nobody in the Alberta Forest Service will admit publically to mistakes anywhere, it seems; and these mistakes are still being made today as I saw last week.

It is easy to dismiss groups like the Alberta Wilderness Association and other Alberta conservationists as Chicken Littles, misinformed and easily enraged. This is a stereotype that is at least as widespread as the stereotype of the profit-crazed investor or the corrupt politician. But like those other stereotypes, it is not true. Please don't dismiss these concerns. They aren't going away because they are rooted in a widespread, growing and deep-seated concern about the future of a very beautiful - and exhaustible - province. The longer that you wait, thinking these issues (logging in the Oldman headwaters, damming the Oldman, pulp mills on northern rivers, resorts on winter range) will blow over if you steamroller ahead, the more Alberta will lose and the stronger will be the inevitable reaction. Surely you can already see it building.

Why not call on everyday Albertans from every walk of life and every philosophical perspective to create a Strategic Conservation Plan for Alberta, and start with the Oldman watershed? And in the meantime, why not pull in the reins a bit and make a serious effort to start managing Alberta's natural heritage a whole lot more conservatively and cautiously than has been the case, at least in Dutch and Racehorse, to now?

Sincerely,
Kevin Van Tighem

Fifteenth Annual Loran L. Goulden Memorial Award

Presented by John M. Powell

Lloyd Malvern Lohr was presented with the Fifteenth Annual Loran L. Goulden Memorial Award, on January 27, 1990, for outstanding work on the natural history of Alberta. Lloyd was born in the Ewing Lake district 24 kms southwest of Stettler and still resides in that area, the son of early pioneer parents, Lester and Beula Lohr. He grew up on a farm with nature as his constant companion. He met Kerry and Marjorie Wood of Red Deer in his early years who fostered his interest in nature and Kerry, now an Honourary Member of the Federation, loaned Lloyd his first bird book.

Lloyd's contributions to conservation and outdoor education have been most varied. He has led nature study groups for the Boy Scouts, Girl Guides, 4-H boys and girls clubs, Junior Forest Warden clubs, and school groups. Lloyd likes camping, hiking, canoeing and skiing - is a good organizer for these outings and emphasizes the study and appreciation of nature on these outings and practises conservation. He maintains a large nature photography collection and has often presented shows on natural history and care of the environment to groups. He has contributed a section of land for wildlife habitat retention and maintains a trail system on it for hikers, bird watchers and skiers. He has often conducted bird identification classes for interested groups in the community, and since the 1940s has coordinated Christmas Bird Counts in the Stettler area. In the birding field he also conducts an annual Bird Breeding Survey, serves as regional coordinator for the current Alberta Bird Atlas project and monitors and maintains several bluebird trails. He keeps a current record of natural events regarding birds and plants and has supplied

Robert Gardner presenting the Loran Goulden Award to Lloyd Lohr. John Powell at right. (Photo: Pat Clayton)

information to several university students for their theses, also study animal or bird skins to the University of Alberta, and migration information to the U.S. Fish & Wildlife Service. Since the late 1970s he has coordinated FAN's May Species counts in the Stettler area.

Lloyd was the guiding force in organizing the Buffalo Lake Naturalists in January 1973, served as its first president and several times since. He has also been a member of FAN since 1970, a long time Director and served as Vice-President in 1976-77. He maintains membership in a number of other national and provincial natural history groups: the Alberta Wilderness Association, Bruce Trail Association, Great Divide Trail Association and Waskahegan Trail Association. Now semi-retired from farming he still maintains a Saddle and Leather Shop on the home site of ''Spruceyvale Farms''.

A further account of Lloyd's natural history activities, up to 1980, is found in the Alberta Naturalist, Special Issue No. 1, July 1981, pp. 89-90 and photos pp. 18 and 23.

Author's Address:
5828 - 143 Street, Edmonton, Alberta T6H 4E8.

The Baird's Sparrow in Southwestern Alberta

C. Lisa Schmidt

The Baird's Sparrow *(Ammodramus bairdii)* is an uncommon bird of the grasslands of the northern Great Plains. In 1989, this inconspicuous species was designated as ''threatened'' in Canada by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Habitat loss is the likely cause for the reduction in numbers, although this species is easily overlooked and often misidentified. The Baird's Sparrow is a short-tailed, buffy-gray sparrow with a distinct buffy-range central crown stripe and a necklace of widely spaced dark streaks across its pale buff chest. It may be mistaken for the Savannah Sparrow *(Passerculus sandwichensis),* but the central crown stripe is more buffy and no yellow lore is visible.

The song of the Baird's Sparrow is readily distinguished from those of other grassland species. Song types vary among individuals; usually 2-4 chips of alternating pitch are followed by a tinkling trill at a lower pitch. One individual was heard to give 2 quick introductory notes at varying pitches followed by 5 chip notes instead of a trill (unpubl. data).

The breeding range of the Baird's Sparrow extends from southern Alberta to southern Manitoba, west-central Minnesota, North Dakota, South Dakota, and Montana. The wintering range extends from southern Arizona and New Mexico to northern Mexico (Godfrey 1986).

Predominantly a species of the northern fescue and mixed grassland regions, the Baird's Sparrow prefers ungrazed or lightly grazed lush grasslands in the northern fescue, and ungrazed, damp depressions of uplands in mixed grasslands (Wershler unpubl.).

At the McIntyre Ranch (49° 10'N, 112° 50'W) near Magrath, Alberta, the highest recorded population density of Baird's Sparrows in Alberta was found south of Anderson Lake. The vegetation is mixed native-tame grassland habitat supporting rough fescue *(Festuca scabrella),* timothy *(Phleum* spp.), brome *(Bromus* spp.) and alfalfa *(Medicago* spp.) A walking song count along straight-line transects revealed population densities that ranged from 10 singing males/40 ha to 32 singing males/40 ha. Previously, the highest known population density in Alberta was 17.4 singing males/40 ha at the Hand Hills Ecological Reserve, east of Drumheller (Wershler, unpubl. data). Other species found along transect routes were Savannah Sparrows, Vesper Sparrows *(Pooecetes gramineus),* Western Meadowlarks *(Sturnella alpestris),* Chestnut-collared Longspurs *(Calcarius ornatus),* Horned Larks *(Erempohila alpestris)* and Long-billed Curlews *(Numenius americanus).* This site is significant because high population densities of Baird's Sparrows found previously have only been in areas of native grassland.

Range expansion and contraction is common in this species as Baird's Sparrows are more plentiful at moister sites during dry years, and drier sites during wet years (Salt and Salt 1976; Kantrud and Faanes 1979). Although Baird's Sparrows have been noted to occupy fields of grain and exotic plants (Cartwright et al. 1937; Salt and Salt 1976; Sousa and McDonal 1983; DeSmet and Miller 1988; Wershler unpubl.), the usefulness of these habitats as breeding sites is unknown due to the lack of information on habitat variability and reproductive success. This year Baird's Sparrows were encountered frequently in habitats unoccupied in previous years (W.B. McGillivray, pers. comm.). Whether this was an unusual year, perhaps due to high rainfall, will be assessed next year. Information on Baird's Sparrow populations encountered anywhere in Alberta can be forwarded to the author's address at the Provincial Museum of Alberta as it may prove useful in a future study of population fluctuations of this species.

Acknowledgements

Special thanks to W.B. McGillivray, who first introduced me to grassland ecosystems and the Baird's Sparrow. I thank J.C. Barlow, J. Dick and W.B. McGillivray for their assistance in the field. Thanks to Ralph Thrall Jr., Ralph Thrall III and the staff of the McIntyre Ranch for their assistance and cooperation.

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Author's Address:
Provincial Museum of Alberta, Natural History Section, 12845 - 102 Ave., Edmonton, Alberta T5N

Congratulations Kerry Wood

The pen is often mightier than the sword, and occasionally even the bulldozer. Those of us fortunate enough to have grown up with the writings of Kerry Wood have witnessed the truth of the aphorism of the power of the pen, as we have been inspired to carry on the work of Kerry and Marjorie in protecting the environment we share with the other creatures on this planet.

Aside from several books, Kerry has published over 6,200 articles, 9,000 newspaper columns, 400 radio talks, T.V. scripts and been the subject of 300 television interviews.

On Friday, October 12th. 1990 His Excellency, The Right Honourable Ramon J. Hnatyshyn, Governor General of Canada, travelled to Red Deer to present The Order of Canada to Kerry Wood. The Order of Canada is the highest civilian award which Canada can bestow.

Following is a text of the speech of presentation given by the Governor General on that occasion.

Mr. Wood, distinguished Guests, ladies and gentlemen: It is a pleasure, sir, to be here today to award you the Order of Canada.

Environmentalism is becoming a deeply ingrained concern across this nation and around the world. But it is a tribute to your foresight and understanding, that your interest in ecology goes back to your youth. At a time when the vast majority of people assumed that the environment could forever absorb the products and by-products of human existence, you were among the few who perceived the fragile nature of nature itself.

But you did more than merely understand: you used your skill as a communicator to share that understanding with others. And, because it was not enough to simply tell what you knew, you became a force for ecological action. The Kerry Wood Nature Centre in the Gaetz Lakes Migratory Bird Sanctuary marks your contribution to the existence of that wildlife preserve. Your service to organizations ranging from the Scouting movement to libraries is a standard of volunteerism by which others may be judged.

The Order of Canada being presented to you today is a token of the esteem in which you are held by all those who have read your words or listened to your radio and television presentations. Canadians comprise only a part of your audience, for the importance of your message can be found in the fact that it is available in many languages, including Braille.

This insignia is your country's way of saying thank you for the social and environmental richness you have conferred on us in the course of your remarkable life.

It is a great honour, sir, to meet you and to present the award you have earned so fully. Congratulations.

Kerry also received the Governor General's Literary Award in 1955 for The Map Maker, his biography of the explorer and surveyor David Thompson; in 1958 he again received the award for the book The Great Chief.

(Reprinted from the Red Deer River Naturalist Newsletter November 1990).

Further Observations on the Woodland Caribou in Northern Alberta

Bob Gainer

The article by Otto Hohn in the Alberta Naturalist (20:45-47) described woodland caribou and lichens in the Caribou Mountains based on several visits to the area. Included was a qualitative assessment of a substantial population but no actual estimate.

I lived in Fort Vermilion from 1980-86 and several times visited the Caribou Mountains as well as always wondered how many caribou actually existed in the area. Probably the best way to achieve this is low level flights in the late winter or early spring. The most animals I ever saw were 27 in March 1982. I flew from frozen pond to frozen pond over about 20% of the plateau. The best pond size was about 500 metres in diameter, not the large lakes in the area. The animals seemed to prefer these bodies of water both for avoiding wolf harassment and for foraging. Often caribou would be observed in the middle of a frozen pond facing wolves at the edges. Around the edges the snow would show much caribou sign.

In addition I would often drive to Pine Point and Fort Smith in the winter. The locals talked of a resident winter herd of caribou near the Fort Smith-Pine Point junction. It was generally thought to consist of about 20 animals. I would see the tracks several times a winter, usually within 2 kilometres east of the junction, and once I observed 9 animals. These animals were thought to migrate down from the north side of the Caribou Mountains.

Other areas thought to have woodland caribou were the Cameron Hills to the west of the Caribou Mountains and the Buffalohead Hills to the South.

Often I would hear forestry officials and locals in the High Level area describe caribou in the Cameron Hills. In the winter there seemed to be some movement of animals between there and the Caribou Mountains through the Steen River area. Several trappers reported caribou on the southeast slopes of the Buffalohead Hills (Gainer, in press). There may have been some movement of caribou between here and the Birch Mountains to the east. The impression that the locals in the Fort Vermilion area in general and I had was that the caribou in the Caribou Mountains stayed high in the mountains over winter rather than migrating to lower ground as they did on the northern slope. There may have been some movement, though, in the southeast slopes where they were often reported low down by locals and Soper (1941), and where they would be closest to the Birch Mountains to the south.

The figure often used for a population size for the caribou resident to the Caribou Mountains was 200, which found general agreement with the locals in the area. Several people mentioned that the little bit of hunting pressure there used to be seemed to have quite an impact either directly on their loss of numbers or indirectly on their emigration. The hunting of these animals was closed in 1981, but before that local native and non-native hunting probably accounted for about 25 animals a year. In the Pine Point area, probably half of that on average would be taken up until recent fires (1988). Since then I have lost touch with the people in the area.

Liturature Cited

Gainer, R. in press. Animal life in, The Bicentenial History of Fort Vermilion.

Soper, J.D. 1941. History, range and home life of the northern bison. Ecol. Monogr. 11:349-412.

Author's Address:

Box 1058, Hanna, Alberta T0J 1P0.

Discovery of Glacier Lily *(Erythronium grandiflorum)* in the Cypress Hills of Alberta

Margaret Walker

On Friday, May 25th, 1990, our usual contingent headed for the Cypress Hills in the rain and cold to do a tour of our usual May Species Count haunts. Unlike last year it was not snowing, but the area had experienced a late spring.

On our count we found a total of 59 plant species in flower, for some of which we could only find one specimen in flower, but the early-flowering species such as prairie crocuses and shooting stars were in their prime and in abundance. Also in abundance was the western spring beauty *(Claytonia lanceolata;)*; six or seven hillsides were white with them, a wonderful sight.

On Saturday night when we returned to our motel, we were greeted excitedly by a group of park workers and shown, a stone's throw away from the motel, a lovely stand of striped coral-root orchids *(Corallorhiza striata)*.

However, the big excitement came when we were talking to the person in charge of fire control and forestry management in the park who told us he had found something interesting in a cleared area off the beaten trail. He offered to take us there immediately in his four-wheel drive truck. In fact, we needed it since the rain had made the "road" slick and dangerous. We were finally taken to a large clearing, and there, in a clump, were about seven specimens of glacier lily *(Erythronium grandiflorum)*. We were astonished and delighted. My husband took a photograph, but there is no doubt of the identity of the plants as we had seen fields of them in Kananaskis last year. The floras we consulted list glacier lily as a strictly Rocky Mountain species and we were unable to find any previous evidence of anyone having found them in the Cypress Hills. We do not know how long the plants have been there.

Note: This is just another example of some of the interesting and valuable information on the flora of Alberta which has been accumulated through F.A.N.'s May Species Count over the years. (J. Derek Johnson, Provincial Compiler, May Species Count (Plants).)

Author's Address:
1407 St. Andrew's Place N.W., Calgary, Alberta
T2N 3Y4.

Glacier Lily (Photo: Derek Johnson)

Announcements

Baillie Fund Grants Available for Bird Projects in 1991

Do you have plans for an individual or club project on birds that needs some extra funding? The James L. Baillie Memorial Fund for Bird Research and Preservation may be able to help. You are invited to apply for a grant.

The deadline for submission of applications is January 31, 1991. For further information, write to the Secretary of the Fund or contact the F.A.N. office for more details.

Baillie Fund applications forms and instructions may be obtained from Mark Stabb, Secretary, James L. Baillie Memorial Fund, Long Point Bird Observatory, P.O. Box 160, Port Rowan, Ontario N0E 1M0 (Tel: 519-586-3531). The James L. Baillie Memorial Fund is funded primarily by Long Point Bird Observatory and co-operating naturalists' clubs from proceeds from Canada's annual Baillie Birdathon. By taking part in the Birdathon, individuals and clubs can help support the Fund and clubs can keep a share of the proceeds for their own projects. Information on participation in the Birdathon may be obtained from Doug McRae, Birdathon Coordinator, at the same address as the Fund (see above).

Now Available from the Environmental Law Centre, 202, 10110 - 124 Street, Edmonton, Alberta T5N 1P6 Tel: (403) 482-4891.

The Price Of Pollution: Environmental Litigation In Canada

by Elizabeth Swanson and Elaine Hughes

This book contains an in depth review of the law in Canada relating to pollution; common law tort actions; statutory causes of action; and environmental prosecutions. Also included is an analysis of contemporary issues in environmental law such as public interest litigation. A must for lawyers, governments, industrialists and environmentalists. ISBN 0-921503-33-4 Price: $69.95.

The Al-Pac Review Hearings: A Case Study

by Paul Edwards

Through a comprehensive review of Alberta's assessment of the proposed Al-Pac pulp mill, lawyer Paul Edwards looks at the effectiveness of informal public reviews of complex industrial projects. The book contains useful recommendations for reform with an analysis of recently proposed environmental impact assessment legislation. ISBN 0-921503-35-0 Price: $29.95.

Environmental Law Centre Newsletter

The Environmental Law Centre is pleased to re-introduce its popular Newsletter! Published four times a year, the Newsletter will keep you up to date on important developments in environmental law and policy across Canada. Case summaries, legislative review and analysis and editorial commentary by legal experts will be featured in each edition.

Subscribe now and find out whats really going on in this exciting new area of law!

Subscription rates are $100 for one year; $25 for non-profit groups.

Rat's Nest Cave Closed; Access Management Plan Seeks Input

A FRAGILE RESOURCE: Rat's Nest Cave on Grotto Mountain is an enjoyable alternative for an outing when the mountains above are weathered in. The cave, designated as a Provincial Historic Resource in 1987, contains bones of now-extinct species and other deposits of great scientific and heritage value to Albertans.

A THREATENED RESOURCE: As use of Rat's Nest Cave has increased over recent years, wear, tear and damage have progressively disrupted the record provided by the Quaternary bone bed. A comprehensive study of the cave by Dr. C.J. Yonge, for the Alberta Historical Resources Foundation, recommends that conservation must receive priority over recreation if the cave's nationally significant features are to be preserved.

ACTIONS TO DATE: Notices posted to regulate access have not altered use patterns. Gates installed on the pit entrance and on the horizontal entrance have not been effective in controlling access.

THE NEXT STEPS: A secure gate has now been installed. Alberta Culture and Multiculturalism is preparing an access management plan and wishes to involve all users and interest groups in the process. Until this plan is complete, Rat's Nest will be closed to recreational use.

GET INVOLVED: For more information on this issue, or to provide input to the management planning process for this Provincial Historic Resource, please contact: Barry Newton, Alberta Culture and Multiculturalism, Old St. Stephen's College, 8820 - 112 Street, Edmonton, Alberta T6G 2P8 (403) 431-2330.

Advance Notice:

Flowing through Alberta

20th Annual Conference of the Canadian Nature Federation, Red Deer, Alberta July 4 - 7 1991, hosted by Red Deer River Naturalists to celebrate their 85th birthday.

Follow the Red Deer River from the mountains through rolling aspen parklands, out to prairie grasslands and the arid badlands of dinosaur country.

Explore with us by coach or van, on foot or horseback, by raft and canoe - or simply travel in your imagination with our knowledgeable speakers as they discuss the diverse natural history and environmental concerns of the Red Deer River.

For information and registration forms contact: Jennifer O'Brien (403) 346-6814

Club News

The Lethbridge Naturalist's Society

This summer the Lethbridge Naturalist's Society offered a series of field trips to a variety of locations in and around southern Alberta.

Day field trips included the Poll Haven area in Waterton, Cypress Hills Provincial Park, Crowsnest Provincial Park (B.C.), Upper Bob Creek in Waterton and a visit to Keho Lake to look for fall migrants.

Early morning bird walks were fun every Wednesday from 6:00 to 7:30 a.m. in Lethbridge's local urban parks from mid April to late June. These were very well attended by many keen ''early birders''.

The Society spent much time and energy this summer fighting against a proposal for a golf course in one of the City's urban parks, Pavan Park. The park is situated in the Oldman River Valley and contains an extensive area of riparian habitat which is rich in wildlife. After much lobbying by Society members, the proposal was eventually turned down by the City Council.

During the fall and winter, regular indoor meetings are held on the second Friday of each month at Lethbridge Community College.

Programs coming up 1991 are: January - ''A Naturalist in the Canadian North'', Teresa Dolman, February - ''Forest Ecology'', Dr. Ted Nason, March - ''Insects'', Dr. Alec Harper, April - ''Forest Management in Cypress Hills Provincial Park'', Keith Bocking.

Elizabeth Savoy

To The Editor

Dear Anna:

I have some additional information relating to articles published in the AN over the past year, and rather than writing a special note, I think a letter to the editor will suffice as the best way to relay this information.

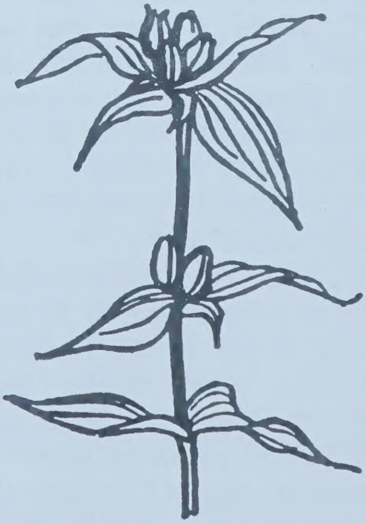
In an article on ''The True *Carex rostrata* (Cyperaceae) in Alberta'' in AN 19(3):105-108, Graham Griffiths made a comment (p. 107) asking whether this species is genuinely rare or merely underrecorded in Alberta. I would argue that it is the latter. I have two additional locations for the species in Alberta as follows:

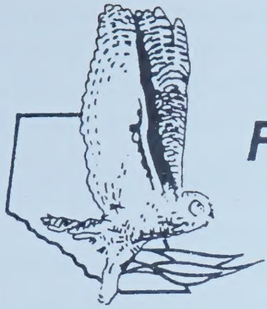
- South of Highway 2, 8 km NW of Hondo (55° 06' N 114° 09'W, elev. 595 m); floating peat at edge of small lake; collected August 15, 1989 by J.D. Johnson; deposited in herbarium of Northern Forestry Centre (no. 8279); determined by J.D. Johnson, verified by G.C.D. Griffiths.

- Secondary Road 881, 1 km S of Engstrom Lake (56° 11'N 110° 54'W, elev. 550 m); floating peat at edge of small lake; collected September 4, 1990 by J.D. Johnson; deposited in herbarium of Northern Forestry Centre (no. 8603); determined by J.D. Johnson.

The second bit of information I wish to add relates to the May Species Count (Plants) report in AN 20(1):6-13. One of the new plant species recorded on the 1989 count was Moss Gentian *(Gentiana aquatica)*. In my report I commented on its distribution in Alberta as I knew it. Subsequently, an article by Vernon Harms on the ''Rare Native Vascular Plants in the Saskatoon Area'' appeared in Blue Jay 48(2):65-78 (1990). In this article he includes a map showing the distribution of Moss Gentian in Saskatchewan (p.70). This may be of interest to readers in east-central Alberta where this rare plant should be looked for in moist seepage areas in grassy meadows.

Derek Johnson





FLOWING through ALBERTA

20th Annual Conference of the Canadian Nature Federation

Canadian Nature Federation Will be *Flowing through Alberta* in 1991

Michael O'Brien

Acting as host for the Canadian Nature Federation's 20th birthday and annual national conference, the Red Deer River Naturalists will also be celebrating a significant birthday of their own.

''We understand that our organization is the second oldest natural history group in Canada,'' says Dorothy Dickson, chairman of the '91 conference. ''Our Society will be having its 85th birthday next year, and we'd like to invite you to the party. We hope to provide an enjoyable conference and perfect weather to see Mountain Bluebirds, Burrowing Owls and American Dippers, and to hear many excellent Alberta natural history specialists.''

The Red Deer River Naturalists Society, formerly known as the Alberta Natural History Society, is well known for its very active involvement in environmental issues and battles over the decades. However, as hosts to the CNF, the RDRN will offer a conference which features both natural history insights as well as informed views on current environmental issues.

''While one conference track will be issue oriented, the other will be on natural history and the enjoyment, through shared knowledge and direct experience, of our natural world,'' explains Myrna Pearman, conference program co-ordinator.

The society, the Red Deer River Naturalists, and its home community of Red Deer, both derive their name from the river which runs through the attractive city of 55,000. That river will be the focus of the conference. Conference sessions and the trips which will bracket it will follow the Red Deer River as it flows from mountain glaciers, through the parkland and the prairie ecological zones of Alberta.

One set of speakers will deal with the environmental issues of the three zones that the river runs through, while another set of speakers will deal with the pleasures of seeing and understanding the natural history of the three zones.

Prior to the conference, delegates may register for a 5 day prairie zone trip, or one of several 3 day to 1/2 day adventure trips closer to Red Deer. A week long trip featuring caving, mountain horseback riding and camping, and an exploration of some of the mountain parks will follow the conference. Field trips during the conference will include canoeing and rafting on the river as well as walking beside it. This will provide a look at the beautiful Waskasoo Park the RDRN helped to plan and which stretches throughout and beyond the boundaries of the city.

Delegates will also be able to taste some of the nearly 40 kilometres of trails through the city - most through wooded and other ''bird infested'' natural areas. Bird life is varied and abundant in Red Deer partly due to the city being the first in the country to have instituted a purely biological mosquito control program - a program that is economical, inexpensive, environmentally friendly, and also one that, unlike most, appears to work. Come and find out more about our mosquito program, a program which relies in part on the enhancement of natural mosquito predators, part on bacillus *Thuringiensis israelensis* and part on a willingness of the citizenry to swat what's left.

Besides the conference hotel, Red Deer has a very pleasant campground by the river, and there will be rural back yard spots available for RV campers. The organizing committee invites you to bring the family, and is preparing a full and fun filled program for the young people and children.

Other organizations supporting this conference include: Ellis Bird Farm Ltd., The Normandeau Cultural & Natural History Society, The Kerry Wood Nature Centre, and the Kerry Wood Nature Centre Association.

Further information and registration forms for the July 4th to 7th conference will be available by January. Write to: Jennifer O'Brien, CNF Conference Registrar, 20 Riverview Park, Red Deer, AB T4N 1E3.

Lake Newell

A letter to Rob Gardner

Medicine Hat Regional Coordinator Alberta Bird Atlas

Dear Rob:

Well, Rob, finally the report from VL38. Sorry for the terrible procrastination. I trust that you won't mistake my tardiness for a lack of interest in the project. Personally I found it to be a rewarding birding year out at Lake Newell this past year. Participation in the project lent a healthy purpose and direction to something I usually just enjoy.

Kinbrook Island is an enchanting area for a great variety of birds. One would have to give special acknowledgement to the EID and Ducks Unlimited for the significant habitat improvements they have undertaken, particularly to the east and south marshes. The Swen Bayer peninsula development is one particularly attractive area which allows for an enjoyable walk-around to observe several different nesting birds. And, plunk, right in the middle is an oilwell. Compromise - yes: harmony, - I'm not so sure. At any rate, I just hope that the govermnnent's build up of the main park these past two years does not overcommercialize the area and create too much of a stressful environment for the birds. It was distressing enough to note the number of spent shotgun shells on my walks through the marshy areas.

Much of the charm for the birder of this area lies in the rich diversity of habitat. Though one often reads about the tremendous birding experience to be had in Point Pelee in Ontario, surely Kinbrook must be highly valued on the home front for what it has to offer. I suppose one would have to forgive the unacquainted his first impressions as he travels down 873, slicing through the dry, fobidding prairie, though the serious birder would be heralded by, amongst others, the abundance of singing meadowlarks, the scurrying Horned Larks, the occasional Swainson's Hawk, or the Western and Eastern Kingbirds perched on the fence lines, who almost invariably dart off just when one is about to snap a shot.

But on entering the park one's impression is quickly altered; the cacaphony of sounds is overwhelming, and it doesn't take long for even the novice birder to quickly tick off a dozen or so different species on his birding list, - from the crazy, teeth-grating coot to several types of ducks including the show-off to beat all show-offs - the Ruddy Duck, to the polygamous phalarope, the defensive, but strikingly handsome Willet, to the resident leader - the Canada Goose. The observant would almost assuredly be lucky enough to pick out the staid Great Blue, and offshore those magnificent dancers - the Western Grebe, a day's study in themselves. Of course, the main draw for all would be the stately White Pelican, far enough offshore not to be bothered by one's encroaching presence.

The change in habitat is no less impressive. From the dry burnt prairie terrain one is quickly immersed in a rich marsh area, replete with the usual willow clumps and cattails. Looking ahead one notices the towering cottonwoods of the island park and various other trees and bushes developed by the parks' people. A great place to camp, but home to many species of breeding birds. Yet it's not unless one focuses specifically on the birdlife that one truly appreciates the rich variety of birds that co-exist amongst the campers in this area. Special observations to us this past season were the colourful Northern Oriole, the vagrant Pine Grosbeak - pecking at the cones from a jack pine, the evening fly-by of a pair of Short-eared Owls, the always flittering Yellow Warbler and American Goldfinch, the graceful, reed-nesting Northern Harrier, the occasional pair of White-winged Scoters, and best of all, a nesting pair of Great Horned Owls whose progress in raising their two young we were able to monitor on several occasions. On one occasion I was fortunate enough to see one of the parents return to their young with a California Gull, followed shortly afterward by the other carrying a gopher. It was a feast for all that evening.

American Avocet on the Kinbrook Marsh shore (Photo: Clive Schaupmeyer)

The eastern shore of the lake is bounded by prairie, marshy islets, sandbars, sloughs and sand banks, and offshore by small islands with a spattering of willows and decaying trees. This is where I concentrated the most of my birding and it was interesting to relate the different breeding species according to the subtle changes in habitat. The puddle ducks, Lesser Scaup, avocets and waders seemed to prefer the prairie sloughs where they could slip quickly to and from their nests in the nearby reeds to the safety of the open water when the need arose. I also believe that they would have felt more disturbed nesting in the marshy shores of the lake, due to the unpredictable turbulence. The blackbirds and black terns preferred these same sloughs, though their nests were higher up in the reeds and a bit further from the

Kinbrook Marsh in spring (Photo: Clive Schaupmeyer)

water's edge. I found it interesting that, unlike their cousins, the common terns nested on shoreline sandbars amongst the avocets and Willets. Though they were very vocal in denouncing my presence, they were not nearly as brave and defensive as the Black Tern or Willet. The coots were coots and didn't seem to mind nesting and mingling in any marshy area, but the whimbrels, larks, Long-billed Curlew and Killdeer preferred the dry prairie grasses.

The Bank Swallows darted about like kamikazee pilots and had drilled literally hundreds of holes in the moist, overhanging sand cliffs on the eastern shore. The Great Blue Herons would feed on these same shores but retreated quickly at the slightest perceived threat to their nests in dying trees on small island off the lake. They were as edgy about intuders as the various grebes who preferred the safety and feeding well out on the open water.

The most patient fishermen of all had to be the Black-crowned Night Herons, who would stand apart from each other on the canal banks of the Rolling Hills reservoir, dressed to the nines, waiting patiently for the chance to make a catch. They were a particular delight to watch and though I did not locate their nests, the successful fishers would fly off to the far side of the reservoir to a reedy, bushy area. Perhaps the biggest thrill in this area was the sighting of two pairs of Common Loons. We were able to observe them on many occasions, always in the same area, being careful not to upset them with our presence.

The attraction on the southern portion of this square is, of course, Pelican Island. Because close access is prohibited, I was able to obtain my information for this census through contact with the Fish and Wildlife Department out of Lethbridge. From a fly-over they reported approximately 100 nests of the American White Pelican and not quite as many nests of the Double-crested Cormorant. The interested birder need not feel left out by the restricted access, for with a good set of binoculars one is able to see this small island covered in white, with a lower black fringe of cormorants. No airport is any busier, for while watching them I'm sure that in order to find a landing space they had to wait for another to fly off. And with some patience one has ample opportunities to observe their behaviour off the nesting island.

One calm June evening as the sun was setting I was treated to a spectacular expedition of their fishing prowess. Hidden by a clump of decaying trees I watched as a group of about 40 pelicans would swim about in a horseshoe pattern, vigorously churning and beating the water with their feet and wings in an effort to corral some fish. Then suddenly the horseshoe would close to form a circle and as the circle tightened the thunderous clamour would intensify, until, as if on cue, they would dive and bob as one for the catch. I was able to watch them repeat this process perhaps fifteen times before darkness ended my observations.

At any rate, Rob, realizing that I have not been thorough in recapping our birding experiences at the lake this past year, I do hope that I have communicated some of the enjoyment that we had. We have a cabin at Kinbrook and feel a special fondness for the area, thanks largely to its rich birdlife. Even our children have become hawkeyes, and seem eager to participate again in the birding.

I would like to make one final comment before closing. Of all the ducks, the teals and Lesser Scaups were the most plentiful, with the Mallards and Pintails being frighteningly scarce. I hope that this is just peculiar to this area (and to my observations), and that perhaps the Mallards and Pintails preferred the sloughs of the surrounding farming areas.

Thanks again for allowing us to participate in the project.

Yours truly
R.L. (Rob) Hemsing

Birdwatching Tips learned from the F.A.N. Workshop and Summer Field Trip

Don and Philip Stiles

On July 14, in the vicinity of Lac la Biche, a dozen intrepid birdwatchers spent a day with the expert birder, Richard Klauke. Near our group camp at Shaw Lake, we spent 6 to 8 a.m. listening and looking for birds. From 9 to 12 a.m. on foot we covered Sir Winston Churchill Provincial Park, and in the afternoon we made a driving circuit around Lac la Biche.

What tips did we pick up?

1) The most important for the amateur birdwatcher is--look at the bird, and bring your binoculars up without averting your eyes. This habit will often give you that extra second of identification before the bird flies away.

2) Look at the features of the bird closely and even make some field notes before going to look at a field guide. You will have the bird's features better in your mind and you may not get a second chance if the bird moves.

3) Study the field guides first before you go out. This increases your knowledge of what you are seeing. Similarly, get a check list, or go out with an expert birder, to know what to expect in a certain area.

4) Habitat dictates which birds are found where. Some birds prefer coniferous, some deciduous, some shrub habitat. Some prefer high in the trees, some mid heights and some understory. Going to a variety of habitats gives the most species for effort spent.

5) Fringes of woods are good. You can see a lot from roads. Look for movement, and then try to zero in on the birds.

Sir Winston Churchill Island - Looking at White Pelicans
Left to right are: Lawrence Loyek, Philip Stiles (Ann Stefura behind), Richard Klauke (field trip leader), Lloyd Lohr, Dick Clayton, Alma Bohoslawec and Susan Benoit.

6) Records/tapes can help you learn bird songs, but the more you hear them in the wild the more confident you become. (Dialects can change from place to place so be prepared to be surprised.)
7) Timing must be right to see the most species. The best time is spring migration; for example, to see smaller passerine birds the dates are mid May to early June when the males are singing and setting up territory. Later, they tend to be more secretive.

Seeing a good (interesting) bird keeps up the excitement. What did we see?
1) Best rare bird of the day was Caspian Tern. Ten were seen on a slough between Lac la Biche and Plamondon. Richard Klauke reported that it is rare to see more than two or three at any time in Alberta.
2) Best large group of the day was White Pelicans and Double-crested Cormorants on an island in Lac la Biche.
3) Excellent viewing of White-winged Crossbills complete with the sound of their singing.
4) Interesting Raptors
-A Broad-winged Hawk on the early morning bird walk.
-A Sharp-shinned Hawk chasing Cliff Swallows under a bridge where they were nesting. It stayed there a short time until flushed.
-A Kestrel chasing a Red-tailed Hawk out of its territory.
5) Evidence of breeding--adults carrying food, or seeing young birds.
-Common Yellow-throat - carrying food.
-Yellow Warbler - carrying food.
-Ruby-crowned Kinglet and young nearby.
-Swainson's Thrush and young nearby.
-Black Tern - carrying food.

Richard had explained to us that eastern Warblers were now scarce in this area as they move away soon after breeding, however, we did see over 60 species of birds, including an Ovenbird, during our exploration of the habitats around Lac la Biche. We thank Richard Klauke for an enjoyable day and a great learning experience.

Author's Address:
20 Lake Wapta Rise, S.E., Calgary, Alberta T2J 2M9.

Noteworthy Raptor Records from the NWT-Alberta Border Area

E. Kuyt

In late April and May each year the Canadian Wildlife Service (CWS) conducts aerial surveys over the Whooping Crane *(Grus americana)* breeding range in and near Wood Buffalo National Park (WBNP). The surveys are flown in single engine fixed-wing aircraft (Cessna 185 or similar types) based at Fort Smith, NWT.

In early June, 1990 through the cooperation of the U.S. Fish and Wildlife Service (USFWS) I had the opportunity to extend May surveys into June on board a small USFWS twin engine aircraft N737 (PARTENAVIA PN68).

Although time and funding requirements dictate that most CWS surveys shall be concentrated in the Sass and Klewi River areas where most Whooping Cranes nest, some flights, including those with N737, covered low-density nesting areas and potential nesting habitat.

The upper (southern) portions of the Klewi River fall within the category of potential nesting habitat and I have seen a pair of subadult Whooping Cranes there regularly over the past three years. It was this portion of the cranes' summer range that we were visiting in N737 on 7 June 1990 when we sighted a distant white bird in a green sedge meadow. As we approached the bird, we found that it was not a Whooping Crane at all but rather a raptor. The bird was practically pure white with faint light brown facial markings and a few light brown stripes on wings and back. The bird's plumage resembled that of some adult light phase Gyrfalcons *(Falco rusticolus).* I have seen several of these large falcons in the Fort Smith area but only in winter, and with the exception of one, all were dark-plumaged individuals.

As we circled the raptor a second time, it flew from the meadow and landed on the broken stub of a dead spruce tree. Its wing shape clearly indicated that it was not a falcon but a round-winged hawk. The thought of it being a Snowy Owl *(Nyctea scandiaca)* also occurred to me. These owls are sometimes seen in the area but again only in winter. I found a dead Snowy Owl a few years ago in the Sass River area after initially spotting it during a June crane survey.

Fortunately the bird riddle was quickly solved, as during our next pass the bird spread its tail and the pale rufous colour indicated we had been looking at a light-phased Red-tailed Hawk *(Buteo jamaicensis).* I have seen several light-phased Red-tailed Hawks in northern Alberta and elsewhere but never one whose colour could not be called anything but white. Godfrey (1986) refers to these birds as *B.j. kriderii* and indicates that the reddish tail colour may even be absent from some of these variable-plumaged hawks. Krider's Hawk is a bird chiefly found in the southern prairies (Godfrey 1986). CWS biologist L. Shandruk (pers. comm.) on 22 July 1990 saw one of these hawks on his farm 8 km west of Two Hills, Alberta. When seen from a distance the flying bird was the same colour and appearance as a White Pelican. When

Shandruk came closer he thought it was a white Gyrfalcon but when he approached to within 150 m he saw a light rufous tail and referred to the bird as white Buteo.

My June observation was made at approximately 60°12'N. 113°35'W or about 22 km north of the NWT-Alberta border. Taverner (1945) mentions a relatively southern distribution but also states that Krider's Hawk may occur as far north as Yukon.

On the evening of 20 May 1990 I visited a favourite birding area 5 km NW of Fitzgerald, Alberta. As I drove past the north end of a long wetland I noted a raptor in a dead tree some distance out in the marsh. The bird was facing me and its light reddish cross-barred breast resembled that of a Cooper's Hawk *(Accipiter cooperii*)or of a Broad-winged Hawk *(Buteo platypterus)* The bird's tail was not noticeably rounded at the tip as in the Cooper's Hawk but it was not what I would call short or "relatively short" as it has been referred to in bird guides (Salt and Salt 1976). I have one or two sightings of flying Cooper's Hawks near Fort Smith but I've never seen a Broad-winged Hawk in the area and know of no other birder in the area who has.

As I glanced from my bird field guide to have another look at the hawk, I noted with dismay that it had flown. Its manner of flight would have been another important field mark.

On 23 May, now in the company of B. Johns (CWS, Saskatoon) and R. Drewien (USFWS, Wayan, Idaho) I returned to the wetlands to see if the unidentified raptor might still be there. We were fortunate to see the bird, not only in the same area but now much closer to the road. Again it was perched in a dead tree, intently looking at the ground and trying to keep its balance in a stiff breeze. We remained unsure of the bird's identity until it slowly spread its wings and tail and flew off. The dark tail barred with whitish bands was unmistakably that of a Broad-winged Hawk. Both Johns and Drewien are thoroughly familiar with the bird. Although I have seen the bird on numerous occasions in Saskatchewan I have never seen it this far north and I suspect it is a northern record for the species. The bird was observed about 59°53'N, 111°42'W or 14 km south of the NWT-Alberta border.

This woodland hawk breeds in a relatively narrow east-west strip in Alberta (also in the Cypress Hills), north to the Lesser Slave Lake region (Godfrey 1986) and near Hines Creek and Cold Lake (Salt and Salt 1976). It has been reported without evidence of breeding as far north as Lake Athabasca in Alberta and Saskatchewan (Godfrey 1986). The hawk's sighting near Fitzgerald is about 512 km north of Lesser Slave Lake and 6 km north of the border of WBNP. Many parts of Wood Buffalo National Park and vicinity remain largely unexplored due to few roads in the area and

Whooping Crane (Photo: Edgar T. Jones)

a low human population density. The NWT-Alberta border area contains a variety of raptorial birds including breeding Golden Eagle *(Aquila chrysaetos)*, Bald Eagle *(Haliaeetus leucocephalus)*, Peregrine Falcon *(Falco peregrinus)*, Red-tailed Hawk, and other hawks and falcons. Birders will find the border area near Fort Smith, NWT a challenging place with many unusual bird observations still to be made.

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Author's Address:
Canadian Wildlife Service, 4999 - 98 Avenue,
Edmonton, Alberta T6B 2X3

Mate Swapping - Can You Swallow That!

Doug Collister

INTRODUCTION

In 1986 a pair of Tree Swallows successfully nested and fledged 6 young from a nest box at the author's home in Lakeview district in Calgary. Both adults were banded. On May 7, 1987 a pair of banded Tree Swallows appeared at the nest box and were identified as the same male and female that nested successfully in 1986. On May 14 & 18 another pair of Tree Swallows was present as well as the pair banded in 1986. On June 6 the nest box contained one egg being incubated by the 1986 female and from this point forward the only male present was the unbanded "newcomer". The birds successfully fledged their single young. No Tree Swallows have nested at this site since 1987 up to and including, 1990.

DISCUSSION

The report by Hoffman & Pletz (1988) of a pair of Mountain Bluebirds that bred at a nestbox in both 1986 and 1988 stimulated me to write this note. The Tree Swallows in Lakeview clearly showed fidelity to their nest site from 1986 to 1987, although their commitment to the pair bond was apparently less intense. Bent (1942) notes that observations on banded Tree Swallows have shown that a pair may breed together in successive seasons.

However, there is other evidence of lack of pair bond maintenance by Tree Swallows. Fletcher (1926) in Bent (1942) reported a pair that mated in 1925, but upon returning the next year paired off with different mates, like the Lakeview birds. Terres (1980) suggests that Tree Swallows usually have a different mate each year. The fact that it was the banded female that remained and not the male is not surprising in light of the finding of Tuttle (1987). Each year in his study area 60% of the breeding female Tree Swallows had either nested previously in the study area or were raised there during the previous year.

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Author's Address:
3426 Lane Cres., S.W., Calgary, Alberta T3E 5X2.

The Riddle of the Halictid

Dennis Baresco

I'm sitting at my desk, wondering why I'm sitting at my desk. It is a hot, muggy, Medicine Hat August afternoon, and...well, you know the feeling. My next program needs to be worked out, but my thoughts keep wandering. I am looking for an excuse to be interrupted.

It appears. Something strange is happening on my desk. A small winged creature seems to be having a terribly difficult time doing - whatever it is trying to do.

I look at my boss. He is across from me, busy pounding away on the computer. I get the feeling, however, that he is acting; he too is looking for an excuse to legitimize his wandering thoughts.

"Say, Rob!" I call out, trying to sound as if this welcome interruption is actually an important interpretive find. "Have a look at this. A Halictid bee - it appears to be of the subfamily Halictinae - is confused by the bar of light coming through the window and won't cross over the shade barrier."

Well now, that's not really what I say; more like: "Hey Rob! Look at this thing, whatever it is. What's it doing?" He looks instantly, proving to me that today his power of concentration on work-associated projects is as weak as mine.

We spend the next twenty minutes watching the "thing". It is not having fun. We are. You are probably wondering what the thing is doing. I'll share it with you. A diagram might help (see diagram).

The light is shining on half of an 8 1/2 X 11 inch piece of plain paper. The bee is "trapped" on the rectangular shaft of light. By the way, I say "bee", but classifying the creature comes much later, after two hours of examining wing venation and antennal attachments under a dissecting microscope. If you are disappointed that I have not come up with the genus, let alone the species, well - jeez, give me a break; I'm a curious naturalist, not a dedicated entymologist. But I digress.

The thing (maybe 5 to 7 millimeters long) walks towards the window which is, however, at least half a metre above it. It reaches the wall of shadow and cringes from it as if that dark line is a doorway to death. Sometimes it crosses over, but for a distance no more than one or two body lengths. Then -- Zap! It lifts off and flies backwards, back to the light on the paper. The problem is, each time it lands, it does so on its back! Then, it buzzes around and rights itself in a few seconds.

Now, the little thing is adamant; it just refuses to give up. I mean, we watch it do this perhaps sixty times. Each time, the same thing. Then, big trouble: it must be tiring, because all of a sudden, it can't right itself. It takes about sixty seconds. Back on its feet again, it heads for the window and the wall of its prison. But wait, this time it crosses over - it keeps going - is it going to make it? - fat chance! It goes perhaps two centimetres then - sproinnnggg - back again. Its steps get slower. Now, every time, it is spending five or ten seconds on its back. It is time for -- the Great Experiment!

What will happen, I think to myself, if I replace the white paper with my shiny black, same-sized daytimer? Will the bee just go "AAAUUUGGG!!!" and collapse on the spot? Who knows how it will react? I set my daytimer overtop of the white paper while the bee is off on its very brief excursion in the shadow. Right on cue, and for the ninety-ninth time, it flies backwards. It lands on the black paper - upright! Instantly, it heads for the window above it, not walking, but flying!! It is free! Well, not really free, because now it's trapped in the

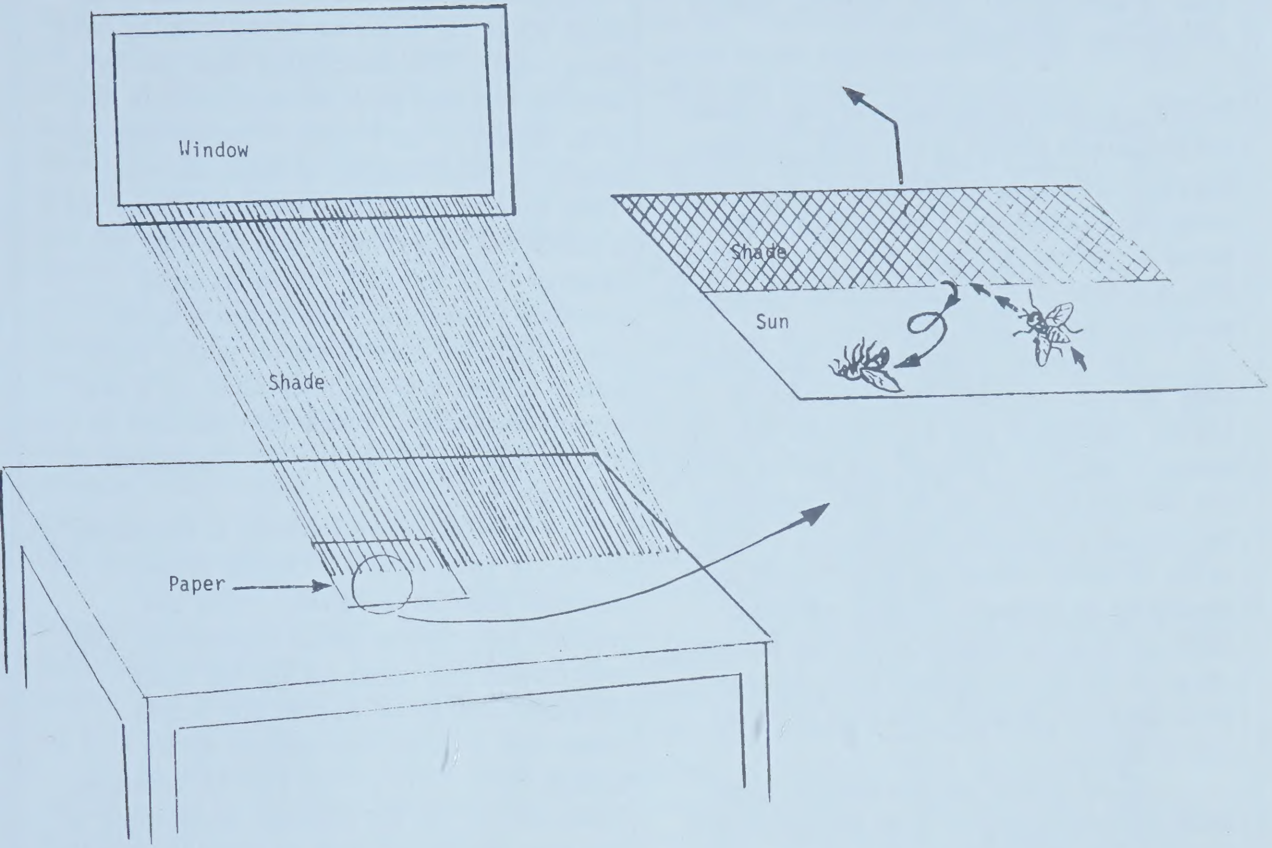

Diagram sketch by Dennis Baresco

window; there is no way it's going to get out of this one. But that's not the point of this story. The point is: why? Why does it not fly directly to the window instead of trying to walk? Why is the shadow such a barrier? Why does it land on its back every time? Why does it walk into the shadow (however briefly) only after the 60-seconds-on-its-back episode? Why does the change from white to black ensure its success?

Now, I could answer all these questions, but the answers would be the result of pure guesswork, backed only by a good sense of logic but an extremely limited experience in insect behaviour. Besides, I know how much all of you are looking forward to solving the halictid riddle on your own. In fact, I am sure that, even now, a seasoned entymologist is saying, ''Pshaw, what a simplistic riddle!'' and is setting about writing an explanatory volume or two. So, I leave it with you, to solve at your leisure. Write me; I'll tell you whether or not you are right!

Author's Address
130A - 3rd Street, N.E., Medicine Hat, Alberta T1A 5M1.

The Passing of the Wood Bison

A Canadian Zoologist

NOTE: *I think a reprinting of this obscure but passionate article in the 1925 Canadian Forum (5:301-305) is appropriate at this time given the Federal and Provincial governments's present dealings with these issues. For purposes of space approximately 30% is presented here.* Bob Gainer.

The author, indicates that the Canadian government knowingly introduced bovine brucellosis and tuberculosis into the bison of the Park. As well the author points out that the naming of the Park embraced the idea of a sanctuary for the area's distinct strain of bison, which the government later proceeded to damage. Today, although there are many sanctuaries for this particular strain of bison, the present Park management does not embrace the idea of being one of them.

At no period has the herd of wood bison still roaming free in its original home between the Peace River and Great Slave Lake received as much attention as at present. Zoologists in every corner of the continent, and even outside of it are marvelling that these magnificent animals, after passing through many vicissitudes and being provided at long last with a real haven of refuge, should now be doomed to rapid, certain, and complete extinction. For, if present plans mature, it is only a matter of a few years before the wood bison has been wiped off the map.

At the northern end of their former range, the area supporting bison narrowed and terminated in a point to the west of Great Slave Lake. No modern bison remains have been found to the northward. Theoretically, this part of the range was continuous with the remainder, but actually this was probably not the case. For this is the coniferous forest area that carried comparatively few bison, and in it there are large tracts on which no bison remains have been found. The distribution was 'patchy', and this is a vital point to recognize. In this area, thanks to the locality's former inaccessibility, a small number of bison survived. They have enjoyed theoretical immunity for a number of years, but it was not until the close of 1922 that they finally received adequate protection. The entire area of some 10,500 square miles on which these beasts ranged was then set aside as a permanent sanctuary. Today they are said to exceed 2,000 (F.H. Kitto, The Geographical Journal).

To return for a moment to the plains bison. In 1875 a Pend d'Orielle Indian captured four bison calves. From this nucleus two captive herds developed. One was owned and cared for on the Pend d'Orielle reserve by Michel don Pablo. When this reserve was opened up for settlement in 1907 by the U.S. Government, Pablo had to sell his animals, constituting at that time the largest herd of bison in existence. They numbered 700 and were purchased by the Canadian Government and shipped to Elk Island Park, at Lamont. The majority were later transferred to the Wainwright Park, where, by December, 1920, they had increased to over 5,000. The extent of the Park is about 160 square miles. During the fall and winter of 1923 nearly 2,000 beasts were slaughtered, in spite of which the numbers exceeded 8,000 in January, 1925. The Park cannot safely support so many, and the Government is now faced with the problem of disposing of some 2,000 surplus animals annually.

The first point to draw forth comment in the Government scheme was the threatened mingling of the two races. The Department of the Interior attempted to forestall criticism on this head in its initial announcement of its plans. This took the form of an article, by Mr. Maxwell Graham in the Canadian Field Naturalist (Dec. 1924). He points out that there are really two ranges in the wood bison park, a northern and a southern, and that Mr. C. Camsell found that the animals from the one range did not migrate into the other at the time of, and immediately prior to, his investigation (Sept., 1916). Mr. Graham, therefore, considers that the animals of the northern range will remain uncontaminated forever. The country between the two ranges is a belt of jackpine and small muskegs. Not only is there no effective barrier to prevent animals from passing from one range to the other, but there are actually old buffalo trails that do cross supposed line.

But even if the loss of a distinct race were deemed unimportant, there is another point to be considered. It is a perfectly well known and authenticated fact that tuberculosis is rampant in the Wainwright herd.

On the other hand, I have been unable either by conversation with men from the north or by hunting through published literature to find the slightest evidence of even a suspicion of tuberculosis in the northern herds.

By what principles of conservation is the Government prepared to defend the swamping of a magnificent nucleus of large, healthy animals by an overwhelming majority of inferior beasts of diseased ancestry? There is even a possibility that the interior hybrid likely to result may prove unfit for the stringent conditions of the northern park to which the wood bison is so admirably adapted--or that the hybrids may not prove fully fertile; there is certainly no evidence that they will, yet it is evidence that could have been obtained without risk to the wood bison. Either result would involve the ultimate loss of the whole bison supply.

It is popularly believed that the chief object to the transfer is to guarantee the far north a certain meat supply for the future. If so, the Wainwright animals should surely be turned loose anywhere but at the one spot which has already its bison supply.

Again, on what scientific grounds can the obliteration of the last remnant of the world's largest bison be justified? In the Edmonton Journal, May 5, 1925 occurs the following remarkable paragraph: The Department of the Interior at Ottawa, while admitting that they have received protests from zoologists and mammalogical societies of the United States and Canada [against the proposed scheme] are going ahead with their plans, claiming that their own experts are better qualified to judge the policy, because of experience and practice, than are zoologists at a distance.

That the Department is apparently not without its zoologists is evident from the publications of Mr. Maxwell Graham. In this official pamphlet, Canada's Wild Buffalo (Dept. of Interior, 1922), he makes the following remark: There are many reasons why the Wood Buffalo in Western Alberta and the North West Territories should be preserved. They are the last of their species living today under absolutely free and wild conditions. They are the finest specimens of their species, superior in pelage, size and vigour to those of the plains.

The threatened hybridization will eliminate the last chance of unravelling one of the most interesting zoological problems on the continent. Better by far to kill every wood bison and distribute the hides and skeletons to the museums of the world, where they will remain pure through the ages, than to let this catastrophe overtake them. Never before in the annals of conservation, as far as we are aware, have the last survivors of a unique race of animals been knowingly obliterated by a department of conservation. The situation is unique. It must surely forever remain unparalleled.

FeederWatchers Report a Boom Season

Erica H. Dunn

For folks who feed birds, hordes of hungry finches certainly put a dent in pocketbooks last winter. According to Project FeederWatch, a continentwide survey of birds at backyard feeders, one of the biggest seed guzzlers was the Pine Siskin. This "boom-or-bust" species periodically leaves the boreal forests of Canada to invade the southern United States in spectacular numbers, and the winter of 1989-90 was definitely one of the boom years. Siskins were sighted at 64 percent of feeders across the continent, compared with only 30 percent of feeders the winter before. Red-breasted Nuthatches joined the invading finches; FeederWatchers reported twice as many as in the previous winter. Pine Grosbeaks and Common Redpolls also visited feeders in large numbers, mainly in northern regions, while Purple Finches were abundant in the south.

All these invasions were documented by the 8,000 bird-watching volunteers who participate in Project FeederWatch, sponsored by the Cornell Laboratory of Ornithology in Ithaca, New York, and the Long Point Bird Observatory in Ontario, Canada.

"We had a big finch year in 1987-88, the first FeederWatch season," says project coordinator Erica Dunn, "but the next winter was pretty much a bust as far as feeder watching goes. In addition to a dearth of finches, we recorded low numbers of many sparrows. Perhaps the widespread drought caused population declines. Happily, sparrows and finches made a good showing during our third and most recent season."

The bird seen at the most feeders across North America was the Dark-eyed Junco, which visited 83 percent of all FeederWatch sites. The House Sparrow was spotted at fewer feeders, just 67 percent, but the pesky, exotic species was still the most numerous of all birds recorded, reaching an average abundance of nearly nine birds per feeder per week.

Looking at the data for just Wyoming, Idaho, Montana, Saskatchewan, and Alberta, the Black-capped Chickadee was the most widespread feeder species, visiting 85 percent of all sites. The House Sparrow was the most abundant species, followed closely by the Pine Siskin and Common Redpoll.

What causes the periodic, dramatic increases in feeder visits from northern finches and nuthatches? The answer in a nutshell: they're searching for food. In the wild, these birds eat seeds--not garden-variety sunflower or niger - but the seeds of trees, especially conifers such as spruce and fir. Conifers produce a bumper seed crop every few years and a paltry supply in the intervening ones. Scientists speculate that this pattern represents a clever reproductive strategy for the tree--in the "off" years, pickings are slim for seed-eating animals. They have few offspring and their numbers remain low. Then, in a good year, the seed eaters are overwhelmed. They can't possibly gobble up all the seeds produced, and as a result, the seeds are left lying around to germinate and grow.

The significance to bird watchers? During a year of plenty, more birds have babies and more baby birds survive. The following year, when seeds are scarce, many young birds head south and end up perched on well-stocked feeders.

Wandering finches aren't the only species whose numbers could be affected by tree seed availability. Last winter, FeederWatchers also recorded increases in stay-at-home, seed-loving jays: Pinyon, Scrub, and Steller's. Are these birds responding to the same cues that bring northern finches out of the boreal forest: Project FeederWatch hopes to answer this question and many others as it continues to document the kinds and numbers of birds at feeders in the years ahead.

The 1990-91 season begins soon. From November through April, FeederWatch participants will observe their feeders on one or two days every two weeks. They'll record their sightings on computer-readable forms, so that results can be compiled and analyzed quickly at the Lab of Ornithology. After sending their data to the Lab they'll read about results in FeederWatch News, a twice-yearly newsletter that provides midseason and annual summaries and population analyses. FeederWatch News also includes tips on feeding birds, reports of unusual and amusing sightings, and information on the behavior and ecology of common feeder species.

There's one other, hard-to-quantify benefit of participation: FeederWatchers have the pleasure of watching birds without guilt. They're collecting scientific data!

If you can accurately identify the birds at your feeders, you're invited to join Project FeederWatch for the 1990-91 season. A $12 subscription fee covers the cost of data analysis and newsletter production. To sign up, or for more information, write to the following address: Project FeederWatch, Long Point Bird Observatory, P.O. Box 160, Port Rowan, Ontario N0E 1M0.

Author's Address:
30 Davidson Road, Aurora, Ontario L4G 2B1.

Book Reviews

Listening to Nature

Joseph Cornell
Dawn Publications, California 95 pp., $16.50
paperback

Devotees of Joseph Cornell will show no hesitation in picking up this book. Famous for his insights into nature and teachings of environmental awareness to children and adults alike, Joseph Cornell is best known for two other books, Sharing Nature With Children and Sharing the Joy of Nature. Anyone who participated in Cornell's workshop several years ago at the John Janzen Nature Centre will recognize the warmth, enthusiasm, and gentle air which pervade this book.

For the uninitiated, Listening to Nature resembles, at first glance, a Sierra Club calendar full of stunning photographs and thought-provoking quotations. But it is much more than that. The book is set up as a daily diary with each day suggesting a theme and a thought to consider during the day. Most days have an activity to assist the reader in experiencing and understanding nature. Cornell attempts to make us more receptive to the sounds and smells, the feelings, of the natural world.

Listening to Nature is not a book to read at one sitting. It must be savoured, either as a daily reading for a month, or as a book to sample often during quiet moments. It offers a doorway to silent contemplation and relaxation. It deserves a space on the shelf next to the writing of John Muir, Aldo Leopold, and other great naturalists.

Anna Robertson

Hiking Lake Louise

Walking, Hiking, Backpacking, and Off-Trail Scrambling in the Lake Louise Area by Mike Potter
Luminous Compositions, Banff, Alberta, 1990, $9.95 paperback

Hiking Lake Louise is a small (125 page) self-published book by a Banff park interpreter and freelance writer. That doesn't sound very exciting, does it? How about, it is the most in-depth guide to hiking the Lake Louise area that there is, written by someone who obviously loves the mountains and knows this area intimately. Yes, I know, you have the original Patton & Robinson hiking guide to the Rockies, and it has lasted you almost 20 years. Why should you change?

Well, you should add Potter's Lake Louise guide to your reference collection because it has dozens of trails that the Patton & Robinson, and other guidebooks, don't tell you about. Some perhaps, that Potter shouldn't talk about either, like Temple Lake -- long a local secret, a place that one could visit in peace when the hoards were descending on Larch Valley.

Hiking Lake Louise follows the traditional format -- there is a brief blurb at the top of each page giving the distance, time, elevation gain and maximum elevation for each hike, followed by a few descriptive paragraphs and personal anecdotes about the hike's highlights. As Ben Gadd (author of Handbook of the Canadain Rockies) wrote in his forward to this book, "there is a bit of Mike Potter on every page". There is also at least one black and white photo for each hike.

Faults? Every book has them. Potter could have used a better editor in spots, as he sometimes gets carried away in his descriptions. He also took a typical "national park" approach to setting the boundaries of the Lake Louise area. The Lake O'Hara area, for example, is a lot closer to Lake Louise than Skoki and Taylor Lake, but technically, it lies in another park, so it isn't included. Oh well, he had to set the boundaries somewhere. Maybe it is indicative of my enthusiasm for his book that I want more areas included! Perhaps my biggest complaint is the photo quality. It just isn't up to snuff. I bet the original photos were nice, but they didn't reproduce well in the book. The many black and white prints are too often washed out, and the rear cover colour shot of the author is either out of focus or poorly printed. Ah, the joys of self-publishing! These features initially turned me off the book, until I read it and discovered how good it really was. Don't judge this book by its cover: it is definitely worth adding to your collection.

Jim Robertson

Animal Tracks of Western Canada

Joanne E. Barwise, illustrated by Ozlem Boyocioglu
Lone Pine Publishing, Edmonton, Alberta, 1989, $6.95 paperback

Are you looking for a gift for the young naturalist in your life? At $6.95, Animal Tracks of Western Canada would be an excellent and inexpensive choice. Written for upper elementary and older children, it provides a simple and exciting introduction to the world of animal tracking. Children's fascination with animals and detective games leads naturally into an interest in animal tracking. This book will stimulate them to want to learn more about natural history.

The guide begins with simple

definitions of tracking terms and an easy-to-follow identification key to tracks. The key allows the user to quickly narrow down the type of track and eliminates the frustration of searching through many pages of track pictures. Brief descriptions containing information on 36 mammals and their tracks are included (perhaps a more appropriate title for the book would have been ''Mammal Tracks''). Each description is accompanied by line drawings of the animal and it's tracks, as well as a range map.

The track drawings are clear and accurate, however the animal drawings are variable in quality and accuracy. The coyote and white-tailed deer are simple and attractively drawn, compared to the rather oddly proportioned lynx and cottontail rabbit and cartoon-like porcupine. However, it must be remembered that this is a guide to the tracks and not the animals themselves.

I was a little disturbed by the accuracy of some of the distribution maps. According to this guide, wolves can be found over most of Alberta and White-tailed Jackrabbits are found only in the extreme eastern part of the province. This could result in some confusion when trying to narrow down which tracks might be found in a particular area. Also, the distribution of several mountain and foothill species in the Cypress Hills (elk, red squirrel, etc.) has been ignored.

At the back of the book is a useful graphic summary of what you might see depending on whether you were track hunting in the city, suburbs, country or wilderness. There is also space to keep your personal tracking notes.

One of the great things about this book is it's size - it fits easily into a pocket or backpack! Also check out the snowshoe hare on the top right hand corner of each odd-numbered page - watch it take leaps and bounds as you flip the pages!

I recommend this book to anyone, old or young, who is just starting to explore our natural world and anyone else who would like a clear, pocket-sized guide to mammal tracks. It is a simple introduction to animal tracking that will leave you wishing for a white (or muddy) winter.

Elizabeth Savoy

A Compact Guide to Wildflowers of the Rockies

Lone Pine Publishing, Edmonton. 1990,
143 pp. $9.95. paperback

By C. Dana Bush

When we were in classes together at the U of C, C. Dana Bush was an enthusiastic ecologist and an avid naturalist. Now she has put her knowledge, experience and artistic talent into this Guide.

This fine volume has a small but effective picture key to the one hundred species illustrated by the author's own paintings. The intent was not to duplicate the more technical keys and extensive descriptions found in other amateur or professional works. This has left the picture descriptions and glossary severely reduced and only just workable. The keyed species must be located by referring to the index (which thankfully contains both common and scientific names).

Alternatively, one could start by searching directly through the ecologically appropriate chapter: Grassland, Montane Forest, Subalpine and Alpine. Within these ecological groupings, the arrangement of species may appear random, however, the author has woven a fine narrative which binds the pages together. I found myself just

Evening Grosbeak (Photo: Edgar T. Jones)

Notice of AGM and Workshops: Calgary, January 26th & 27th, 1991. at Stampeder Inn, MacLeod Trail, S. Saturday; Workshops and Banquet. Sunday; Directors meeting and field trip.

Cover Photo: Crescent Lake, Yamnuska Natural Area

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ALBERTA NATURALIST

Volume 21, Number 1, Spring 1991

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The Federation of Alberta Naturalists is composed of natural history clubs from across the province. The aims of the Federation are:

(a) To encourage among all Albertans, by all means possible, an increase in their knowledge of natural history and understanding of ecological processes;
(b) To promote an increase in the exchange of information and views between natural history clubs and societies in Alberta;
(c) To foster and assist in the formation of additional natural history clubs and societies in Alberta;
(d) To promote the establishment of natural areas and nature reserves, to conserve and protect species, communities or other features of interest;
(e) To organize, or coordinate, symposia, conferences, field meetings, nature camps, research, and other activities whether of a similar or dissimilar nature;
(f) To provide the naturalists of Alberta with a forum in which questions relating to the conservation of the natural environment may be discussed so that united positions can be developed on them, and to provide the means of translating these positions into appropriate actions.

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Box 785, Red Deer, AB T4N 5H2

Vermilion River Naturalist Club
Box 1769, Vermilion, AB T0B 4M0

Associate Member:
Beaverhill Bird Observatory
Box 4201, Edmonton, AB T6E 4T2

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Editor: Anna Robertson
R.R. 2, Lacombe, AB T0C 1S0
Telephone: 342-6889

Executive Assistant: Ann Stefura

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Deadlines for F.A.N. project reports are:
Alberta Christmas Bird Counts, January 30, Andrew Slater, 152 Oakside Circle S.W., Calgary, AB T2V 4H2.
May Species Count for Birds and Mammals, July 15, Ross Dickson, 5-2303 - 22 St. N.W., Calgary, AB T2M 3W5.
May Species Count-Plants, July 15, J. Derek Johnson, Northern Forestry Centre, 5320 - 122 St., Edm., AB T6H 3S5.

Compiler cooperation is greatly appreciated.

Letter To The Editor

The Wagner
Natural Area
Society

Dear Friends of the Wagner Natural Area

The Wagner Natural Area Society would like to thank the hundreds of people who wrote letters, phoned their elected representatives and otherwise supported the struggle to preserve the integrity of the Wagner Natural Area. The members of the Society are unable to personally thank all of you as well as the media that also helped so tremendously. Without your help and the help of publications like this one, the relatively successful outcome we have all achieved would not have been possible.

The Minister of Transportation and Utilities has announced that his department will not be building a road through the Wagner Natural Area. This can only be viewed as a victory, however a road is still to be built to the east of the Natural Area. The final alignment is yet to be determined but it will form the eastern boundary of the Natural Area. This road will block the existing east-west wildlife corridor and will have lethal affects on the large mammals (mainly moose and deer). The new alignment however should not endanger the drainage or the rare plants, including orchids, in the Natural Area. This compromise is not perfect but is a 1000 times better than the original proposal.

Your support over the last two years pressured the Department of Transportation and Utilities to undertake their first Environmental Study. This study, and the procedures established surrounding it, will be a precedent for future highway construction. It has certainly raised the profile of future road planning. You have helped preserve much more than just the Wagner Natural Area.

Thank you for the job well done.

Barry Jenkins
Past President of the Wagner Natural Area Society.

MARL POND
TRAIL

Marl Pond Trail head, Wagner Natural Area.

(Photo: Derek Johnson)

President's Page

The Annual General Meeting of the Federation of Alberta Naturalists, at the end of January, has come and gone. I would like to use this space to tell about a couple of the "Workshops for Wildlife" I attended. We were particularly privileged to have Jordan Johnston, of High Level, superintendent of Footner Lake Forest, tell us about this corner of Alberta. Jordan and his staff manage a forest which extends from Wood Buffalo National Park to the B.C. border. It covers 12% of Alberta and 23% of the Green zone. The staff not only manage the forestry but are cognizant of what's going on in the "white zone" agricultural area at Ft. Vermilion. They're also involved with fire control, disease control and recreation in the forest. They will be helping us with bird atlassing this summer where possible. This area is where new species are most likely to be noted, as coverage has been limited previously. As an example, Jordan notes that the Ruby-throated Hummingbird has been seen in the High Level area.

The second workshop I attended was with Larry Simpson, Alberta's representative of the Nature Conservancy of Canada. Their notable local piece of land is the Cross Conservation Area southwest of Calgary. Land donated to the conservation area is guaranteed protection in perpetuity. Unfortunately donations of natural heritage are only worth one fifth of the write-off value of cultural heritage. Some political will is needed to equalize this.

Larry also discussed the "Conservation Data Base" which is active in the U.S. and underway in B.C., Sask, Ont. and Que. It represents a data bank of natural history with categories of vascular plants, non-vascular plants, mammals, birds and habitat. This data will help tell us the value of various natural areas. The highest and best use of some of these may be conservation.

With apologies to the presenters of the other four workshops I did not attend:

1. The presentation of the natural areas group of Alberta Public Lands.
2. Satellite imagery for identification of habitat for Peregrine Falcon, Burrowing Owl and Pronghorn.
3. Remote bird atlassing.
4. Bird Atlas database in the future.

As you can see, a very interesting set of workshops was given at Calgary. Watch for next year's workshops.

At the Annual General Meeting we voted on accepting F.A.N. membership for two new clubs: the Grassland Naturalists from Medicine Hat, and The Peace Parkland Naturalists from Grande Prairie. We welcome these new clubs, which now brings F.A.N. up to 12 corporate clubs.

The next meetings of F.A.N. are:

1. April 25 to 28 in Edmonton when we will attend the "Flowing to the Future" conference on the state of Alberta rivers.
2. July 4 to 7 in Red Deer. The Red Deer River Naturalists are hosting the Canadian Nature Federation Conference this year.
3. September 28 and 29 in Medicine Hat when we will visit one of F.A.N.'s newest clubs.

Watch for information on these in the AN and elsewhere.

Don Stiles, President

We would like to extend our welcome to the many new members of F.A.N.

Issues

8 November, 1990

Hon. M. Robert de Cotret, Minister of Environment
Parliament, Ottawa, Ontario

Dear M. de Cotret:

The FEARO Review panel on the problem of the diseased bison herd at Wood Buffalo National Park has recommended that the entire herd be slaughtered and the park ultimately restocked with bison from other herds. The Federation of Alberta Naturalists would like to express its profound opposition to their recommendation and to take issue with some of the findings with which it was supported.

There are a number of relatively minor points on which we believe the panel went astray.

The evidence supporting the proportion of the herd which is infected and the degree to which infection is damaging to the herd is minimal. In fact, the herd seems to be doing nicely, infected or not. It is possible that the genetic composition of this herd is adapted to the disease; it is possible that the impact of the disease on bison has been overestimated; it is possible that the incidence of infection has been overestimated. In any case, evidence of need to protect the bison from themselves is inadequate.

The question of genetic purity is not one which can be addressed in the all-or-none kind of fashion adopted by the panel's advisors; issues relating to definition of species and sub-species are complex and probably irresolveable, and the only genetic question which ought to concern us in this instance is the diversity of the gene pools in question. There is no dispute over the fact that the WBNP herd is the most genetically diverse bison herd now extant. To wantonly destroy this resource could be disastrous to the long-term survival of bison as a whole.

This issue of risk to human health is virtually non-existent. Neither tuberculosis nor brucellosis is transmissible to humans who take minimally reasonable care in the handling and preparation of meat from infected animals.

Two major points remain, however.

The issue of risk to domestic stock is entirely under the control of the provincial government; there have always been questions as to the suitability of the land in this area for even seasonal grazing use, and without substantial subsidy, none would take place. To isolate domestic stock from the disease requires only that the provincial government restrict the use of grazing lands near the park. In fact, had the provincial government never adopted a policy of promoting grazing in areas which are widely regarded as too fragile for this purpose, the inquiry would never have arisen. In particular, for this issue to be raised in and by a province which is continuously expanding the acceptable limits of game ranching, in the teeth of evidence for the risks to domestic stock of this practice, begs questions much larger than this panel was willing to address.

Finally, the issue of the purpose and function of WBNP has been completely overlooked. This international heritage site was selected, in full understanding that the bison were diseased, because of its large, genetically diverse, and self-sustaining herd. To permit outside agencies, which have the solution to their problems in their own hands, to require a national park to sacrifice its reason for existence is criminal. In fact, the panel's procedures and findings are terribly reminiscent of those related to the twinning of the Trans-Canada Highway and of the CP tunnels in the Four Mountain

Parks: the panel has behaved, start to finish, as though the proposal, from an outside agency, were to be accepted as a foregone conclusion, and as though their only real job was to identify the conditions under which it could best be done. This first Federal Environmental Assessment and Review Office panel to deal with a western national park issue which was not a foregone conclusion has seriously failed in its entire purpose.

We call upon the Minister of Environment, who has sole control over national parks, to reject the opinion of the review panel.

Thank you for your attention.

Sincerely,
Maryhelen Posey,
Chair Land Use Committee
cc. Hon. Mr. Don Mazankowski, Minister of Agriculture

* * * * * *

Wetlands in Alberta's Settled Areas

Carol Smith, Director of F.A.N.

The Federation of Alberta Naturalists is pleased to comment on the recently released Alberta Water Resources Commission draft policy for the management of wetlands in the settled area of Alberta. The Commission and the provincial government committee that prepared the draft policy are to be commended for a thoroughly researched, comprehensive and timely proposal. What follows are the Federation's suggestions and concerns related to the draft policy.

The loss of wetlands in the settled area of Alberta is at a critical level. Therefore the Federation suggests that the Government of Alberta adopt a *''no net loss''* of wetlands policy in this area. This means if a wetland is to be drained or altered, another wetland, of similar type and size, must be replaced or enhanced. At first glance such a policy is not the best approach to the retention of wetlands. However it is a policy that forces an economic evaluation to be levied on a wetland; that is, the cost of a wetland is equal to the price to replace it.

A *''no net loss''* of wetlands policy would also place a temporary freeze on further wetland loss because of the need to research the variety of wetlands that exist in the settled region of Alberta. The research is necessary to guarantee a complete understanding of the various wetland ecologies before one could even begin to comprehend how to replace them.

The costs of wetland replacement in the majority of circumstances would far outweigh the cost of allowing the wetland to remain. Even when the price to retain a wetland includes the search for an alternative route for a highway, compensation to the farmer for loss of cultivated acres, or alternative methods of flood control in newly constructed residential subdivisions.

Therefore the General Statement of Principle should read as follows:

The Government of Alberta will ensure the preservation, enhancement, reclamation and management of wetland resources in the settled area of Alberta to sustain the agricultural, wildlife, environmental, economic and social benefits that wetlands provide.

The planning strategies proposed in the draft policy include the collection and development of wetland inventories in the settled regions of the province. This process will be facilitated and enhanced by employing the existing data. Ducks Unlimited Canada, Canadian Wildlife Service, Alberta Agriculture, Alberta Forestry, Lands and Wildlife, Wildlife Habitat Canada, Municipalities, local natural history clubs and fish and game associations should be contacted to elicit their information on wetlands. For example, Strathcona County #20 produced a survey of wetlands in the County during the development of their Outdoor Master Plan in 1987. Several other municipalities and districts have recently completed sensitive areas studies.

The above-mentioned groups should also be included in the creation of objectives for wetland management in the settled areas of Alberta. This early involvement will ensure mutually acceptable objectives to all parties involved. Early participation will avoid resentment, challenges and delays later when conflicts will develop over the multiple use of wetlands.

Management strategies for different types of wetlands will be necessary in the policy. Therefore the differences between types of wetlands and their distribution throughout the province must be recognized.

The education and awareness portion of the draft policy for informing Albertans about wetland values and benefits will be an integral part of the policy's overall success. Currently wetlands are generally considered to have little value until they are converted to some "productive" use. Persuading politicians, agriculture, government departments and the taxpayer will require a major marketing campaign. These programs should be of similar magnitude to the programs to convince Albertans to use seat belts or to stop smoking.

Since the loss of wetlands is a major environmental threat, the cost of this campaign should not be an obstacle. Wetlands boast some of the most productive ecosystems in the world. Wetlands support 42 rare or endangered species of plants and animals. They perform important hydrologic functions, in times of flooding and in times of drought. They are important research and educational tools. Wetlands exist as an early warning system for environmental health when their ecology is monitored to assess levels of pollution. Wetlands support the harvest of many natural resources including fur bearing animals, wild rice and waterfowl.

The educational and awareness programs to inform Albertans about wetlands' values and benefits should be coordinated with existing programs. This avoids duplication and ensures the same message is reaching the public from all agencies involved in wetland management. Sportsmen and women, environmental organizations, government departments, and soil and water conservation groups must all be part of an overall approach to demonstrate to every Albertan the need to preserve wetlands.

The wetland management strategies must follow this integrated approach as well. If the Government of Alberta adopts a *"no net loss"* of wetlands approach, drainage of permanent wetlands would not be permitted; the cost to replace them would be unfathomable, if in reality it could even be accomplished.

Another wetland management strategy should include incentives, both financial and others. Compensation to the private landowner for a direct loss on his or her property is justified to pay for society's gains. Coordinating with the various agencies currently involved in private landowner wildlife habitat programs will provide current information on these strategies, including those used in the United States.

Connecting retention of wetland and other soil and water conservation practices to eligibilty for agricultural subsidies would be more effective than increased regulation and enforcement methods. That is taking the "carrot" approach as compared to the "stick" approach in regulating what landowners can do on their own property.

Drainage of non-permanent wetlands

could not be considered a management tool if there is a *"no net loss"* of wetlands policy adopted. Retained ownership of public lands that contain wetlands is a good management strategy; as in leasing private land that has significant wetlands. Placement of conservation easements on wetlands that are foreclosed before they are resold to the public is another strategy to pursue.

Various wetland management strategies to utilize wetlands as water management tools can be acceptable as long as they attempt to include other users as well, including wildlife. For example the McFadden Creek project in Strathcona County is a joint effort between Ducks Unlimited Canada and Alberta Agriculture. The project controls flooding and enhances wildlife habitat at the same time.

Research will be necessary to achieve a comprehensive understanding of wetland ecosystems. A few words of caution. Do not make research a stalling tactic while the business of draining wetlands continues on as usual. Although mentioned earlier, existing data and research must be collected to utilize as a starting point to further research. Current prejudices, biases and distrust that exist among the three levels of government, between government departments, between government and non-government agencies and between environmental organizations must be set aside.

The program's delivery must include all government levels and departments that are involved in wetland management. This coordinated effort will ensure consistent implementation of a wetland policy that will achieve what it set out to accomplish in its general Statement of Principle. The coordinated effort among all these groups, both government and non-government, must be implemented to avoid duplication of services and inefficient use of taxpayer's dollars.

The legislation directing government departments must be reviewed and altered if necessary to ensure consistency with the policy's direction. If new legislation must be introduced in order to implement an integrated wetland management policy, then propose the necessary legislation.

Overall the Federation of Alberta Naturalists feels the draft policy for the management of wetlands in the settled area of Alberta is an excellent preliminary report. The struggle will be to have it accepted as a government policy without alterations that would render it ineffective.

It is unfortunate that wetlands are viewed as wastelands, because they really are valuable ecosystems. Rather than continuing to plunder and destroy them society should, through understanding and preservation, reap their many benefits forever. The draft policy is a step in the direction to educate society to the values and benefits of wetlands. At the same time the policy will develop and implement integrated land-use planning strategies to ensure that wetlands remain a viable part of Alberta's landscape.

The Federation looks forward to attending the public meetings scheduled for the fall of 1990. If you have any questions or require further information do not hesitate to phone me at home, telephone 922-4002, or at work 922-2736.

Author's Address:
#2, 52250 Range Road 213, Sherwood Park, Alberta
T8G 1B8.

Results of the 1990 May Species Count--Plants in Flower

J. Derek Johnson

Following are the results of the botanical portion of the 1990 May Species Count, held May 26-27. The 1990 count was the fifteenth annual since regular counts began in 1976. The areas from which reports were received have been listed in approximate latitudinal order from south to north. Scientific nomenclature in this report follows Moss and Packer (1983); common names have been taken from Looman and Best (1979).

Participation in the May Count continues to increase. The 132 participants in this year's count surpasses the record set just last year of 126.[1] The 46 individual reports submitted exceeds last year's record by six. The 317 species reported in flower is the third highest total in the count's history. Seventeen areas were covered across the province, the same as in the past two years, but coverage was more dispersed geographically, with the first ever, albeit few, records from High Level. A count was again submitted from Waterton Lakes National Park and it provided several new and interesting records. Edmonton again led all count areas reporting 142 species in flower, up from last year's total, but well below the 1988 record of 174. Whiskey Gap was second, recording 105 species in flower.

The large number of participants and broad geographic coverage, more than the status of the season, was responsible for the relatively high number of species reported in flower. Compilers in four areas felt that the spring of 1990 was even later than that of 1989. Growing degree-day calculations revealed 1989 to be an average year across the entire province. The spring of 1990 was also close to average, but slightly ahead of 1989. The submitted results would tend to support this contention, in that totals of plants in flower in most areas in 1990 were up slightly over 1989 levels. However, the fact that Prairie Crocus was reported in flower in 10 of the 17 reporting areas is indicative of a later season.

In terms of the weather on the count weekend, participants in areas from Calgary southward suffered through less than ideal conditions, but at least there was no snow this year, unlike last year! Saturday was cool and rainy over most of southern Alberta. Sunday was a bit better, but conditions were still generally cool and overcast. Conditions on the count weekend from Red Deer northward were generally better, and Fort McMurray claimed to have had a lovely day for their count.

When it came to trying to identify some very immature specimens submitted for identification, 1990 was no less challenging than was 1989. A lot of the time it came down to educated guesswork when making a determination. This year I was completely stumped by a couple of willow specimens. However, the specimens proved to be a small difficulty compared to the problem of trying to reconcile some of the common names of plants reported in flower with a scientific name I could recognize. I am going to try and get checklists to all the people who participated in the 1990 count to help alleviate this problem somewhat. As much as it might be distasteful to some, I am going to make a plea to all participants to please use scientific names for all plants if they can. If I am unable to figure out what species a particular common name refers to, valuable information is going to be lost from the May Count.

---

[1] Two groups of 14 and 44 participants took part in the count, most of whom were unnamed. For this reason, for reporting purposes, only named participants will be included in the provincial totals from now on.

The count from Waterton Lakes National Park proved to be as interesting this year as it did in its inaugural effort last year. Last year the Waterton count added five new species to the all-time May Species Count list. This year it did the same. The total for the province as a whole was eleven. New species included: *Hydrophyllum capitatum* (Woollen-breeches), *Lonicera utahensis* (Utah Honeysuckle), *Mitella trifida* (Mitrewort), *Trollius albiflorus* (Globeflower), and *Viola glabella* (Yellow Wood Violet) from Waterton; *Erodium cicutarium* (Stork's-bill) from Whiskey Gap; *Saxifraga occidentalis* (Rhomboid-leaved Saxifrage) from Whiskey Gap and the Cypress Hills; *Camassia quamash* (Blue Camas) from Cardston; *Orthocarpus luteus* (Owl-clover) from Medicine Hat; and *Arenaria serpyllifolia* (Thyme-leaved Sandwort) and *Hippuris vulgaris* (Mare's-tail) from Edmonton. Mare's-tail also represents a new family for the count (Hippuridaceae). New records from the Whiskey Gap and Edmonton counts were supported by specimens. Rhomboid-leaved Saxifrage has been encountered for a number of years in the Cypress Hills, but this is the first time that it has been reported in flower. The report from Whiskey Gap was unexpected and represents a first record for this count. Although the report of Blue Camas is the first for the May Count, it is a species included in the Check List of Spring-flowering Plants in Alberta (Hrapko 1988). With the addition of Yellow Wood Violet, an all-time high of 10 species of violet were reported in flower on the 1990 count.

Several of the new species have a restricted distribution in the province (Moss and Packer 1983). Woollen-breeches grows in moist woods and on open slopes in the Waterton-Crowsnest area. Utah Honeysuckle is generally a species of subalpine forests and mountain slopes from Waterton Park north to the Livingstone River. Mitrewort has a sporadic distribution in moist mountain forests from Waterton Park north to Jasper National Park. Yellow Wood Voilet occurs in moist woods in a similarly patchy distribution from Waterton Park north to Banff National Park. Blue Camas occurs in wet meadows in a fairly restricted area of southwestern Alberta.

Woollen-breeches, Utah Honeysuckle, and Yellow Wood Violet are considered rare in the province (Packer and Bradley 1984). However, Utah Honeysuckle is more common than indicated by Packer and Bradley as the forest ecosystem classification project that I worked on ten years ago found this species at 12 sites in southwestern Alberta from the Livingstone River south to the northern boundary of Waterton Park. In addition to the three species just mentioned, nine other species considered rare in the province were reported on the 1990 count. These are: *Ribes viscosissimum* (Sticky Currant) from Waterton and Whiskey Gap; *Ribes inerme* (Mountain Gooseberry) and *Erigeron radicatus* (Dwarf Fleabane) from Whiskey Gap; *Castilleja cusickii* (Yellow Paintbrush) from Whiskey Gap and the Milk River Ridge; *Lupinus pusillus* (Low Annual Lupine) from Medicine Hat; *Gentiana aquatica* (Moss Gentian) and *Viola pedatifida* (Crowfoot Violet) from Red Deer; *Viola selkirkii* (Great-spurred Violet) from Edmonton; and *Polygala paucifolia* (Fringed Milkwort) from Fort McMurray. With both Sticky Currant and Mountain Gooseberry being found in flower, 10 of the 11 species of *Ribes* known for the province were encountered on the 1990 May Count, an all-time high for the group.

One of the most interesting records for the year was the discovery of *Erythronium grandiflorum* (Glacier Lily) in the Cypress Hills. Previously, the species was known only from the mountains and foothills of western Alberta. Margaret Walker's comments about this exciting find were extracted as a note for the AN (Walker 1990).

A record that I did not include with the final listing, but one that is worthy of mention, is the report of *Solanum dulcamara* (Bittersweet) from Medicine Hat. This is an introduced species in the nightshade family, usually occurring in thickets near dwellings, which, according to Looman and Best (1979), is only known in Alberta from Edmonton. The species is not included in the Flora of Alberta (Moss and Packer 1983). Finding another location for it in the province is noteworthy.

Despite the number of other interesting records, the two toppers for the year had to be the reports of "low luckspur" from the Cypress Hills and "moss flocks" from the Lethbridge area. I would hate to be caught in the middle if the moss flocks ever stampeded!

Although the total number of species reported in flower is quite high, I cannot remember a year with so many comments of "one flower only" attached to species reported on the count. If these reports were removed from the compilation it would be many species shorter. Another point that struck me as I was compiling the results was, that aside from the most common species, such a dandelion, stinkweed, and shepherd's-purse, the total number of weed species reported in flower was one of the lowest in many years.

Following is a list of observers, area totals (1989 in brackets), and other pertinent remarks for each area.

1. **Waterton Lakes National Park/West Castle Valley/Lundbreck Falls:** Janice Smith recorded 37 (27) species in the park; John Bain listed 19 species from the West Castle area; and Marg Lewis reported 26 species from the Lundbreck Falls campground, giving a combined total for the region of 55 species in flower.

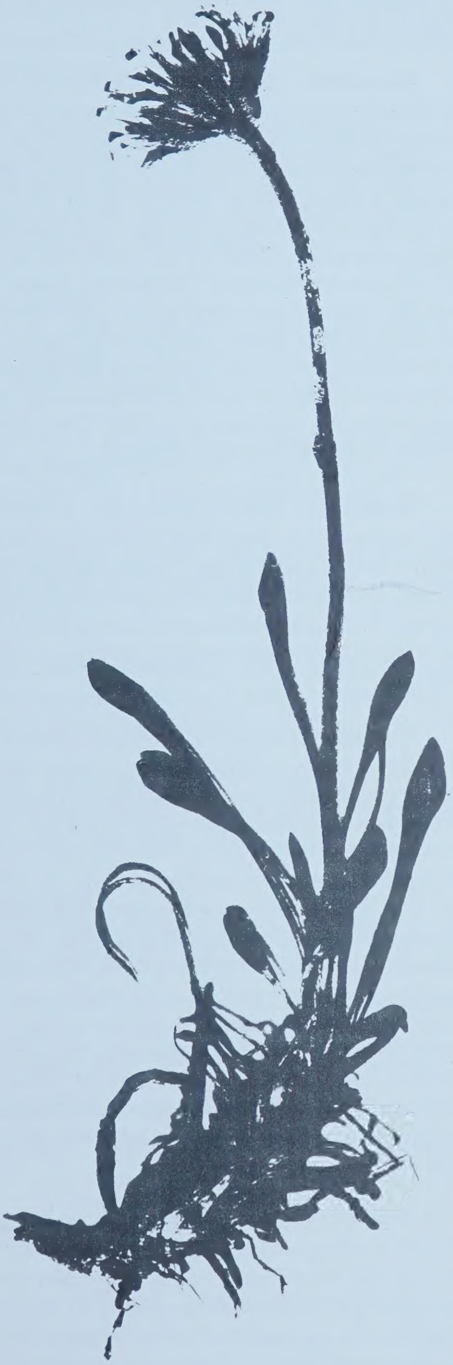
2. **Whiskey Gap/Cardston:** On the fifth annual count in the Whiskey Gap area, Barbara and Lynn Sommerfeldt, and Ruthanne and LeRoy Scotter encountered 105 (102) species in flower. Shirley Sillito reported 27 (21) species from the general Cardston area. The combined total for the area was 108 (102) species.

3. **Cypress Hills Provincial Park:** On the eighth count in this area, two combined reports resulted in a list of 62 (62) species in flower. Margaret Walker and Doug, Sue and Ina Macdonald listed 59 (62) species in flower on their annual visit to the park, and Park Interpreter Ray Nichol, along with 13 other people, submitted a list of 24 (18) species.

4. **Lethbridge:** Liz Savoy found 8 species in the Tyrell/Rush lakes area southeast of Lethbridge and 20 species in flower along the Milk River Ridge south of the city. Sheila Petherbridge recorded 13 species from Stafford Lake east of the city. Frank and Alice Harper and Alice Luchansky compiled 41 species from Botteril Park within the city. The total for the area was 59 (36) species, a respectable number considering the nature of the season. The most interesting record from the area was the report of the rare *Castilleja cusickii* (Yellow Paint brush) from the Milk River Ridge. Liz Savoy commented that the species was fairly common in the area where it was found, but was under threat from potential cultivation.

5. **Medicine Hat:** The best ever count in this area resulted in a total of 48 (42) species in flower. Participants involved in the 1990 count included: Bessie Anderson, Dennis Baresco (compiler), Mike Betts, Grant Bray, Barb Chisolm, Ann and Kevin Corcoran, Eileen Cowtan, Dawn Dickinson, Fred and Linda Flaig, Bob Frews, Corlaine and Rob Gardner, Heather Gaze, Phil Horch, Anna Johnston, Lex Carne, Valerie Martins, Peter Mehrer, Beth and Gordon Milne, Gary Newton, Mr. and Mrs. J.E. Newton, Mark Oxamitny, Dan and Mark Schiebelbein, Doug and Lenore Shepherd, Brent, Charlene, Jemma and Shawn Skidmore, Bob Townsend, Ben and Michael Velner, and Nick Worthington. Things seemed a little more advanced in this area of the province than elsewhere with the

reporting of *Melilotus officinalis* (Yellow Sweet Clover) and *Symphoricarpos occidentalis* (Buckbrush) in flower.



Dwarf Fleabane ***(Erigeron radicatus)***
Whiskey Gap, Alberta. (Photo: P.S. Debnam)

6. **Calgary:** Four reports were received from Calgary. Gordon Kerr again covered Confederation Park in Calgary and Wyndham Provincial Park near Carseland. He found 20 (20) and 39 (27) species in flower, respectively, in these areas. Don Stiles submitted a report covering the southeast face of Nose Hill, the Bow River below Queensland, and Beaverdam Flats. His report included 26 species from Nose Hill, 25 (30) species from the Bow River, and 21 species from Beaverdam Flats. Gordon Kerr accompanied Don on the Nose Hill count. Don commented that loss of habitat near his regular count areas, due to development, is making it more difficult to find native prairie species on his counts. E. Hepburn and W. McIvor, on an independent count, listed 24 species in flower from the southeast corner of Nose Hill. The total number of species for the Calgary area was 61 (63).

7. **Yamnuska:** Sixteen participants, the best turnout in many years, managed to compile a list of 63 (54) species in flower. Those involved in this count included: Janet Amy, Ruth Buskevicius, Paulo Costa, Morag Dornian, Peter Duck, Jean Greig, Alan and Tincka Hipkins, Freida Lammens, Diane (compiler) and Mike McIvor, Aileen Pelzer, Bob Smith, Gail Van Tighem, Roger White, and Eva Zidek.

8. **Banff/Canmore:** The number of species reported in flower on this count was 55 (67). Participants included: Ruth Buskevicius, Peter Duck, Alan and Tincka Hipkins, Freida Lammens, Diane (compiler) and Mike McIvor, and Bob and Mary Smith.

9. **Red Deer:** Five reports were received from the Red Deer area. Helen Harris and Lori Lounsbury recorded 32 species in flower in the Pine Lake area east of Penhold. Dorothy Dickson found 14 species at the Innisfail Natural Area. Mike McNaughton added five species from College Heights in Red Deer and Blackfalds area, north of the city. Beth Peck submitted six species from west of Blackfalds, and Jay Wieliczko encountered 11 species at the River Bend Golf Course in Red Deer. The total number of species seen in flower in the area was 41 (35). *Gentiana aquatica* (Moss Gentian), first reported on last year's count, was again listed in flower by Helen Harris. Both Helen and Beth Peck observed *Viola pedatifida* (Crowfoot Voilet) in flower. Beth saw very few plants, but Helen said she saw over 500 which is about a tenfold increase over last year's report. Mike McNaughton's report of *Listera cordata* (Heart-leaved Twayblade) in flower from the Blackfalds area is of note because it is east of the main

distribution of the species in the province and the first record for the May Count from outside of the Wagner Natural Area west of Edmonton.

10. Buffalo Lake: The limited amount of time spent searching for plants in flower has definitely been a factor influencing the results on this count for the past two years. Numbers have been well below average. Charley and Ann Bird and Don Carlyle found 31 (35) species in flower this year. This is the fewest in the 13 years that the area has been surveyed. However, they did manage to have the only record of *Veronica peregrina* (Hairy Speedwell) in flower for the province.

11. Coyote Lake: Doris Hopkins submitted a list of 21 species in flower from this area 100 km southwest of Edmonton. An early flowering record considering the season was that of *Menyanthes trifoliata* (Buck-bean).

12. Edmonton: The involvement of the Alberta Native Plant Council and the Plant Study Group of the Edmonton Natural History Club again resulted in impressive totals for the Edmonton count circle. Although the number of participants declined from 43 to 18 and the number of reports from 16 to 12, the total number of species seen in flower rose to 142 from 123. Of the 12 reports received, five came from within the city limits, and seven were from outside the city but within an 80 km radius.

In the city, Victor Labelle listed 10 species from Mill Creek Ravine between 34th and 50th Streets. Two reports came from Whitemud Creek between 23rd Ave. and the North Saskatchewan River. Elisabeth Beaubien and Patsy Cotterill encountered 46 species in flower, while George and Etta Scotter and Halle Flygare spotted 69 species, for a combined total for the area of 75 (46). George added four incidental records from 23rd Ave. and Calgary Trail. Patsy Cotterill, covering the U of A campus, the Strathcona district, Rio Terrace and Laurier Park, found 18 species. Patsy's survey of Little Mountain Urban Natural Area in the northern part of the city included 22 (21) species.

In areas outside the city, George Scotter and 43 Waskahegan Trail hikers reported 51 species in flower at Prairie Hill, 6 km south of Rolly View, east of Leduc. Kevin Timoney recorded 30 (18) species at an acreage in the Cooking Lake area. At two acreages, one south of Hastings Lake, the other west of Tofield, Elisabeth Beaubien, Linda Kershaw and Judy Fairweather encountered 27 (31) species. Randy Bayer and Geoff Burrows visited the Shirley Lake Trail in Elk Island National Park, listing 34 species in flower. At the Astotin Natural Area Bill Reynolds, Bill Richards and Art Hughes found 16 (24) species. Patsy Cotterill reported 29 (7) species from the Clifford E. Lee Nature Sanctuary. And finally, the annual visit to the Wagner Natural Area by Diana Barager, Patsy Cotterill, Alice Hendry, Barry Jenkins and Mike Jenkins revealed 53 (47) species in flower.

13. Entwistle: The twelfth annual survey of the area surrounding Hoople Lake came up with a surprisingly good total of 70 (44) species in flower. This is the third best in the history of this count and only 4 species short of the 1988 record of 74. The moist spring and a couple of extra hours spent searching the area helped up the total past expected levels. Fourteen species of *Carex* were found in flower, four more than ever before. *Carex curta* (Short Sedge) was a new record for the area. The most interesting record was that of *Luzula multiflora* (Field Wood Rush), the only other record on the May Count coming from this area in 1987. Derek Johnson and Steve Zoltai were the observers.

14. Edson: At Shiningbank Lake, northeast of Edson, Lorna Allen, Dave and Joan Ealey, Joyce Gould (compiler), and Peter, Karen, Jennifer and Mark Lee produced a list of 28 species in flower. Along the Wolf Lake Road, southeast of Edson, Bruce Robson identified seven species, giving a total for the area of 29.

15. Grande Prairie: The newly-formed Peace Parkland Naturalists showed good enthusiasm in participating in this year's May Count. A total of five reports was submitted. The count area was centred west of Grande Prairie, from the south side of Bear Lake, west to Goodfare, and south to the Wapiti River. On land just north of Beaverlodge, Jeanne Smith reported 19 species in flower. She and Maxine Brown listed 10 species from Saskatoon Mountain. Joan Kerr recorded 12 species on land southwest of Goodfare and 19 species along the Wapiti River southeast of Elmworth. On their fourteenth count in an area northeast of Wembley, Gavin and Ellen Craig encountered 51 (22) species. The total for the Grande Prairie area was 60 (22) species.

16. Fort McMurray: A nice day and a good turnout of participants resulted in a list of 64 (59) species in flower, still below the long-term average for the area, but better than the group expected. Bill Bloomfield, Pat Connelly, Angela DeSilva, Marion Horrocks (compiler), Dave King, Ruth Kleinbub, Fred Korbut, Helen Pacholko, the Vyboh family, and Gretchen Whetham took part in this count. A new and somewhat unexpected addition to the count results from this area was the inclusion of a fragment of *Carex eburnea* (Bristle-leaved Sedge) with specimens submitted for identification.

17. High Level: Incidental observations by Karen Herrmann, on a brief visit to this town in northwestern Alberta, produced the first ever May Count results from this area. Her short list included 11 species in flower.

A complete listing of count results is available on request from the Curator of Botany, Provincial Museum of Alberta, 12845 - 102 Ave., Edmonton, Alberta T5M 0M6. The 1991 count will be held on the weekend of May 25-26.

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Author's Address:
Northern Forestry Centre, 5320 - 122 Street,
Edmonton, Alberta T6H 3S5.

Notes on the Occurrence and Distribution of Goat's-beard *(Aruncus sylvester)* in Alberta

J. Derek Johnson

Goat's-beard (*Aruncus sylvester* Kostel.)(Figure 1), a member of the rose family, is a rhizomatous, perennial herb, with large, alternate, compound leaves, growing to heights of from 1-2 m, but sometimes taller. The flowers are rather small, borne in large terminal panicles, 10 to 50 cm long, composed of numerous spike-like, racemose branches. The species is dioecious, that is, male and female flowers are produced on separate plants. The calyx is broadly and shallowly bell-shaped to saucer-shaped. The flowers have five white, deciduous petals about 1 mm long; the male flowers have 15-20 stamens, while the female flowers normally have three pistils. The male flowers are generally larger and more showy than the female, but in fruit the female plant is quite conspicuous. The fruit is a follicle, about 3 mm long, containing 1-4 seeds. The genus name for this plant comes from the Greek word *aryngos*, meaning goat's beard, in reference to the white inflorescence. The distribution of the species includes moist woods and streambanks from southern Alaska, through British Columbia (east to the Selkirk Mountains), to northwestern California. Alberta is at the eastern extreme of its natural range. The species is rare in Alberta and the Yukon Territory, and has been introduced in eastern North America (Douglas et al. 1981).

During the summer of 1990 I had the opportunity to work on a forest site classification project in part of the Canadian Forest Products (Canfor) Forest Management Agreement area along the east side of the Simonette River, west of Fox Creek. The specific area we were working in was the southeastern half of Tp62 R1 W6. Elevations ranged from 1015 to 1175 m a.s.l. The predominant forest cover is lodgepole pine and aspen forest with some white spruce, black spruce wetlands, and some mature white spruce-balsam fir forest on north and east aspects. The study area falls within the Lower Boreal Cordilleran Ecoregion of Corns and Annas (1986). Many of the sampled stands are scheduled for logging over the next five years.

Vegetation releves were done at 20 sites in the area. The forest vegetation sampling itself revealed some interesting plants, but the most noteworthy encounter was the widespread and abundant occurrence of goat's-beard along almost all the cutlines we used to access our sample sites. There was hardly a cutline in the area less than 20 years old that did not have plants of goat's-beard growing along its edge. In a two week period I would estimate that we saw several hundred plants. The species is generally restricted to relatively recent disturbances, as it was not found on cutlines overgrown by shrubs or in mature forests, with one exception. Three plants were found in a moist, mature spruce-fir stand, but all were growing on bare soil in depressions created by blown-down trees. Two voucher specimens were collected (Johnson 8670, 8676) and these have been deposited in the herbarium of the Northern Forestry Centre in Edmonton (CAFB).

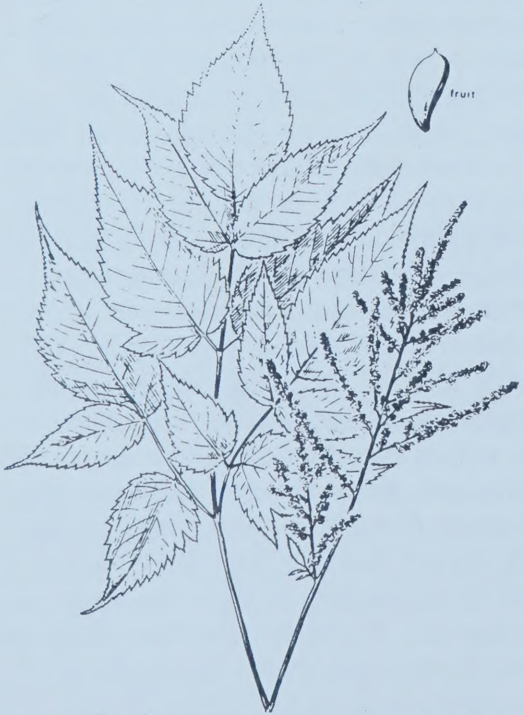

Figure 1. Goat's-beard *(Aruncus sylvester)* (Taken from Vascular Plants of the Pacific Northwest, Hitchcock and Cronquist 1977.)

Goat's-beard does not appear in the Flora of Alberta (Moss 1983). However, it is included in Packer and Bradley's (1984) checklist of rare vascular plants in Alberta. Achuff and Corns (1985) cite the collection locations from the northwestern corner of Jasper National Park and from near the Smoky River, west of the Forestry Trunk Road, on which the Packer and Bradley map was based (Figure 2). The Jasper collection was made in 1979; the Smoky River collection was made in 1977. The Smoky River site is more than 20 km northwest of the nearest location found in this study. It would appear that the species has persisted, and possibly spread, in this same general area for at least 13 years.

Expanding forestry and oil and gas operations will likely increase the spread of goat's-beard in the area, as there is currently a prolific seed source present, and the species does well in moist, disturbed areas. Forestry activities may have been responsible for bringing the species into the area in the first place, with logging equipment brought in from British Columbia, where this species is common and Canfor has its main operations. Its spread, however, is more likely because of the extensive network of seismic lines established during petroleum exploration.

In addition to goat's-beard, six other plant species were found that are worthy of mention in terms of their distribution as indicated in the Flora of Alberta (Moss 1983). These species are: *Goodyera oblongifolia* (rattlesnake-plantain), *Hieracium albiflorum* (white hawkweed), *Menziesia ferruginea* (false huckleberry), *Oplopanax horridum* (devil's-club), *Tiarella trifoliata* (false mitrewort), and *Veratrum eschscholtzii* (false hellebore). Specimens of rattlesnake-plantain and false hellebore were collected (Johnson 8668, 8667). With the exception of rattlesnake-plantain, the main focus of the range of all of these species is western cordilleran. Rattlesnake-plantain also occurs in eastern Canada. It was found at three sites in the study area and these represent the northernmost extent of the species in Alberta. White hawkweed was found at two sites, as well as along two cutlines, and with the exception of the Swan Hills, this represents the northernmost occurrence of the species in Alberta. False huckleberry was also found at two sites, both below 1150 m in elevation. These occurrences are north of the range indicated in Moss (1983) and are below the normal elevation range for the species.

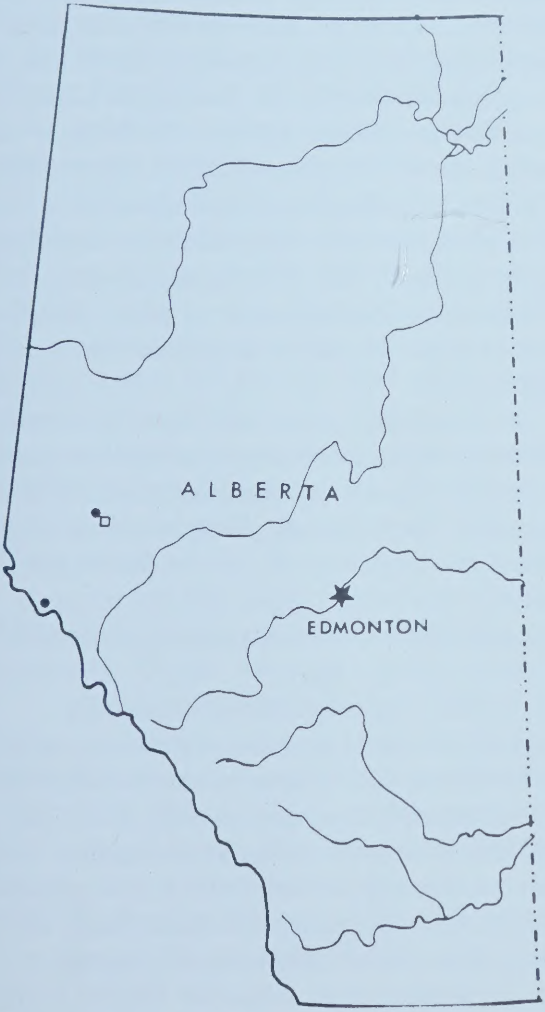

Figure 2. Location of the study area and distribution of goat's-beard in Alberta.

Devil's-club was noteworthy simply for its sheer abundance in the area, to the point where it made working in a few of the sites positively unpleasant. The Swan Hills-Grande Prairie-Grande Cache-Whitecourt region forms the main circle of this species' distribution in Alberta. False mitrewort invariably occurred in the moist sites where devil's-club was also present. Except for the Swan Hills, the study area again represents the northernmost occurrence of this species in Alberta. False hellebore occurred sporadically in some of the forested sites, but it was much more common along some of the cutlines, much like goat's-beard. The study area represents the northernmost occurrence of the species in Alberta.

Acknowledgement
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Author's Address:
Northern Forestry Centre, 5320 - 122 Street,
Edmonton, Alberta T6H 3S5.

Rare Plants of Dinosaur Provincial Park, Alberta

Margaret A. Romuld

Abstract

A field study of badland ecology was conducted in Dinosaur Provincial Park, Alberta from April to September, 1990. Seven rare plant species were identified, three of which have no record of previous sightings within the park. Habitat and population data were noted for each species to supplement previous studies on rare plants within the park.

Introduction

A field study of badland ecology was conducted in Dinosaur Provincial Park, Alberta from April to September, 1990. Although identification of rare plant species was not the primary focus of the research, seven rare plant species were identified that have been previously described as either rare or at their biogeographical limit (Cornish 1989).

Argus and White (1978) classify as rare those plants with small populations within a certain geographical area, plants restricted to a very limited area, or plants which occur sparsely over a wide area. The unique and complex badland landscape located within Dinosaur Provincial Park provides habitats for a number of plants which fit this classification. Various agencies interested in resource management have initiated studies into the status of several of these species within the park. The data presented here were collected to supplement previous studies that limited data collection to the 'core area' of the park.

The rare plant specimens have been verified and are now located at the University of Calgary Herbarium (UAC). The rest of the approximately 200 species plant collection will reside at the Field Station of The Royal Tyrrell Museum located at Dinosaur Provincial Park.

Methods

The primary objective of the field study was to obtain enough data through air photo interpretation and extensive ground survey to classify the complex badland landscape of Dinosaur Provincial Park (50°45'N, 111°30'W) into discrete ecological units based on parameters set forth by the Canadian Committee on Ecological Land Classification (Rubec 1979). The field survey involved the selection of representative sites to reflect landscape types and resulted in intensive data collection and observations from 90 - 10 m^2 plots located within the park boundaries. A plant collection of over two hundred species was assembled.

Secondary objectives were to identify sensitive landscape features within the park including sites of any rare, threatened or endangered plant species. This involved noting the frequency of various landscape features and habitat types and the occurrence of plants previously classified as rare (Cornish 1989).

The methods outlined above are those of the study in general, however, it is within those field surveys described that the data presented herein were collected. The majority of the data collected in the field surveys is not presented here, it will provide the basis for a Master of Science thesis in Geography at the University of Calgary.

Results

The following discussion outlines the

habitat, range, and status, as defined by Moss (1983) and Wallis et al. (1987), of the rare species found within the park. The accompanying maps illustrate the provincial distribution of the species (Packer and Bradley 1984) and their observed locations within Dinosaur Provincial Park in 1990.

Munroa squarrosa **(Nutt.) Torr./False Buffalo Grass *(Gramineae)***

Moss (1983) describes this species as a low tufted annual. Its habitat includes dry plains, slopes, and disturbed areas. Its range includes southern Alberta and southern Saskatchewan and extends south to California, Nevada, Utah, and Texas. Wallis et al. (1987) consider it to be a species of the Central Parkland or Mixed Grassland regions and offer alternate habitats of sandy and gravelly soil. Its status in Alberta is rare and peripheral, at the northwestern limit of its range. It is considered to be a western and mid-western species that is rare in Canada, and at the northern limit of its range. One plant was found on an old, seldom-used roadbed within NE 9 21 12 W4. This species was not a ''target'' or ''priority'' species in the rare plant survey conducted by Cornish in 1989, and no record was found of previous sightings in the park. (Maps 1a and 1b.) (UAC 49463)

Eriogonum cernuum **Nutt./Nodding Umbrella Plant *(Polygonaceae)***

This is an annual plant whose habitat includes badlands and valley slopes (Moss 1983) and sandy soil and sand dunes (Wallis et al. 1987). It is a mixed grassland species with a range that extends from southeastern Alberta to southwestern Saskatchewan, south to Montana, Oregon, California, and New Mexico (Moss 1983). Wallis et al. (1987) include Nebraska in its range but exclude Montana and Oregon. In Alberta it is locally abundant, however, it is at the northern limit of its range. It is considered to be a western species, rare in the prairie provinces, and at its northern limit. It was found at six locations, five of which had been noted by Cornish (1989). Three sites were located on the Badland Trail (NE 6 21 11 W4), an interpretive trail that runs throughout a portion of stabilized badlands in the core area of the park. The other three sites were located on the bus tour route through the Nature Preserve (NE 31 20 11 W4). In all but one instance, populations were lower in 1990 than those noted by Cornish in 1989. (Maps 2a and 2b.) (UAC 49464)

Potentilla paradoxa **Nutt./Bushy Cinquefoil *(Rosaceae)***

Moss (1983) describes this species as an annual, biennial or short-lived perennial herb whose main habitat is moist flats and shores. It is a mixed grassland species. Its range extends from southern British Columbia to southern Ontario, south to California, New Mexico, Texas, Montana, Ohio and New York. Its status in Alberta is rare and peripheral, at the northern limit of its range. Outside Alberta it is widespread, although rare at the northern limit and throughout much of its range. A total of 10 plants were found on the bank of an abandoned and naturalized reservoir near the southern edge of the park (SE 32 20 11 W4). This species was a ''target'' species for the rare plant survey of 1989, however, no plants were found. There are no known previous observations of this species within the park (Cornish 1989). (Maps 3a and 3b.) (UAC 49466, 49467)

Lupinus pusillus **Pursh/Annual Lupine *(Leguminosae)***

This species is a low annual whose habitat includes dry sandy soil and dunes (Moss 1983) and sand hills, sandy shores and dry eroded slopes (Wallis et al. 1987). It is a mixed grassland species of southern Alberta and southwestern Saskatchewan. Southward it extends to California, Arizona and Oklahoma. It is considered locally very common, although peripheral and at the northern limit of its range in Alberta. It is a rare western species in Canada that is at its northern range limit. It was found at four locations within the park, two of which had been previously described by Cornish (1989). Nine plants were found south of the day use area (NW 6 21 11 W4), thirteen plants at two sites within NE 6 21 11 W4 (thirty were found by Cornish in 1989) and nine at NE 31 20 11 W4 (one hundred and seventy-five plants were found in a 100 m^2 plot at the same location by Cornish in 1989). All sites were in restabilized badlands within the core area of the park. (Maps 4a and 4b.) (UAC 49468)

Hedeoma hispida **Pursh/Pennyroyal *(Labiatae)***

Pennyroyal is a small, strongly scented annual whose usual habitat is dry eroded slopes or prairie (Moss 1983) or dry, open sites, often on sandy soils (Wallis et al. 1987). Its range extends from Alberta to Quebec and south to Montana, Texas, Missouri, Louisiana, and New York. It is also described as 'adventive' eastward in New England (Wallis et al. 1987). Moss (1983) includes Florida and Colorado in its range. It is local and peripheral in Alberta, the northwestern limit of its range. It is a mid-western and eastern species, rare at the northwestern limit of its range and rare in Manitoba, Quebec, Minnesota, Missouri, Iowa and New England. It was found in five locations within the park: a dry northern escarpment at SW 33 20 11 W4, river terrace sage brush flats at SW 7 21 11 W4 and SW 10 21 11 W4 and restabilized badlands at SW 8 21 11 W4 and NW 6 21 11 W4. As a result of delayed species identification, populations were not noted for these sites. (Maps 5a and 5b.) (UAC 49469, 49470)

Psilocarphus elatior **A. Gray/Woolly-heads *(Compositae)***

Described by Moss (1983) as a low, woolly annual, Woolly-heads can be found in dried beds of vernal pools or dry slough bottoms. It is a component of mixed grassland; its range extends from southwestern B.C. to southeastern Alberta and southwestern Saskatchewan, south to Oregon and Idaho. It is considered locally abundant although it is at the northern edge of its range in Alberta. It is a western species of restricted range; it is rare in B.C. and Saskatchewan. A total of approximately fifty plants was found on two occasions on the bank of an abandoned and naturalized reservoir at SE 21 11 20 W4. (Maps 6a and 6b.) (UAC 49471)

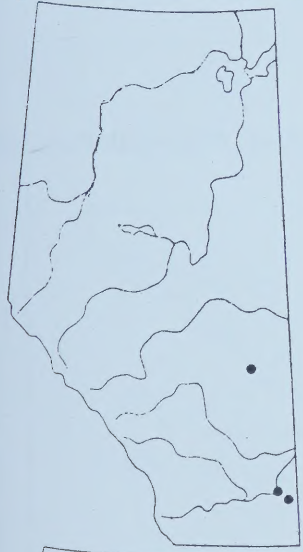
Stephanomeria runcinata **Nutt./Rush Pink *(Compositae)***

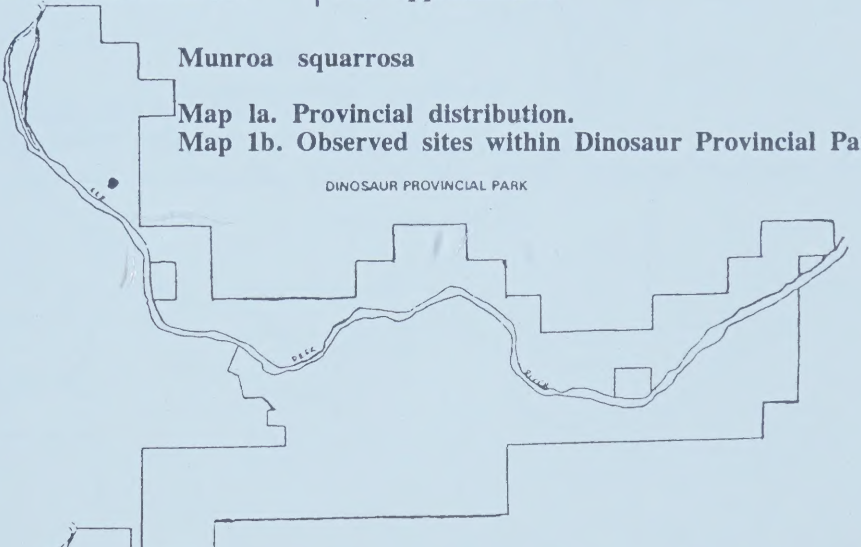
Rush Pink is a perennial found on dry hills and plains (Moss 1983) and dry open sites or eroded slopes (Wallis et al. 1987). It is a mixed grassland species with a range extending from southern Alberta and southwestern Saskatchewan, south to northern Colorado and Nebraska. It is considered rare and peripheral in Alberta and at the northern limit of its range. It is a western species of limited distribution, apparently rare over much of its range. It is endangered in North Dakota and rare in Colorado. Forty-eight plants were found on a dry southern escarpment below the main park viewpoint at SE 1 21 12 W4. Two plants were found on a dry western slope at SW 2 21 11 W4 and sixty-three plants were found on a dry southern slope in Waterfall Coulee at SW 32 21 11 W4. This was a "target" species in the rare plant survey of 1989 and is also a priority species (Category

3) for a status report by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). (Maps 7a and 7b.) (UAC 49472, 49473, 49474)

Discussion

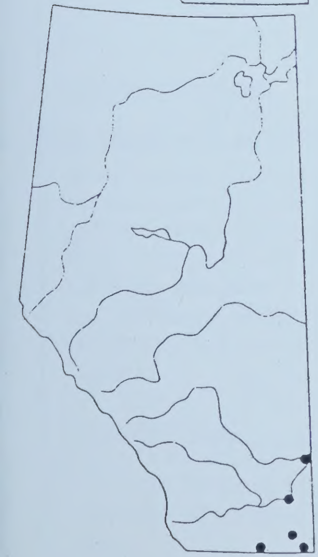
Dinosaur Provincial Park is a unique and complex environment that has been offered ecological protection through both its Provincial Park and UNESCO World Heritage Site status. Both the rare plant survey of Cornish (1989) and the observations of this year's study suggest substantial rare plant representation within the park. This year's study reinforces recommendations made by Cornish (1989) that the park "should develop a rare plant management strategy that addresses preservation of rare plants as part of overall land management objectives." Also, "rare plants should be managed not solely as individual entities. Preservation of rare plants requires preservation of rare plant habitats." Well defined management strategies are particularly important in light of on-going or proposed facility developments within the park. Further studies are suggested in order to preserve all facets of the unique badland landscape for future research and interpretive opportunities.

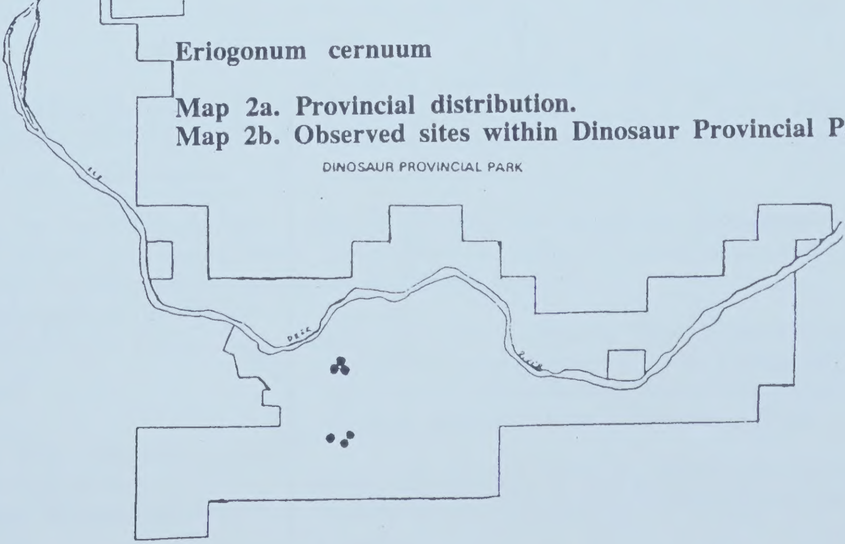




Munroa squarrosa

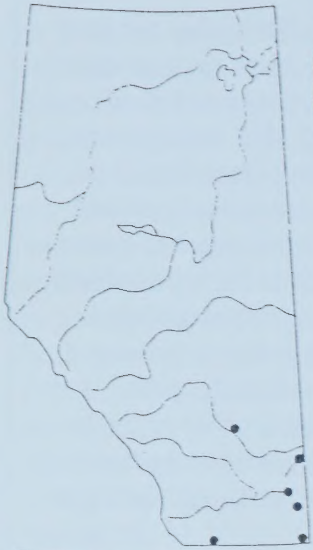
Map 1a. Provincial distribution.
Map 1b. Observed sites within Dinosaur Provincial Park, 1990.

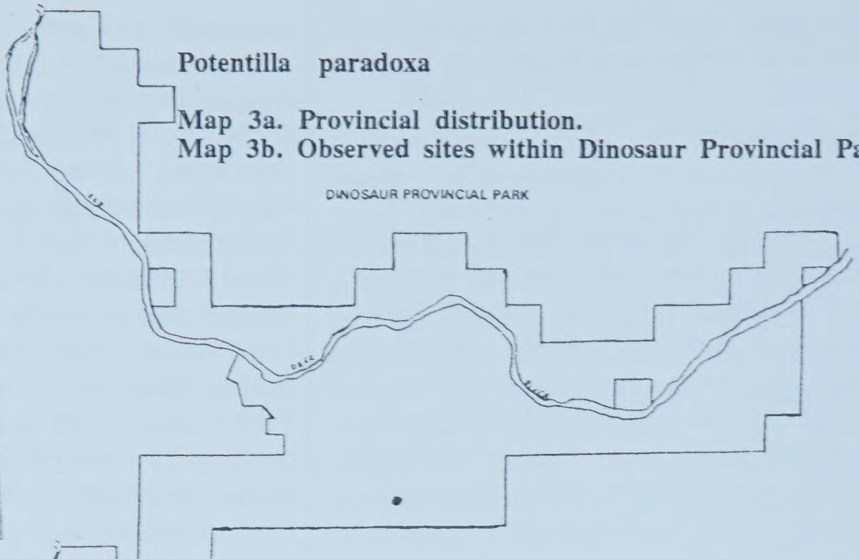




Eriogonum cernuum

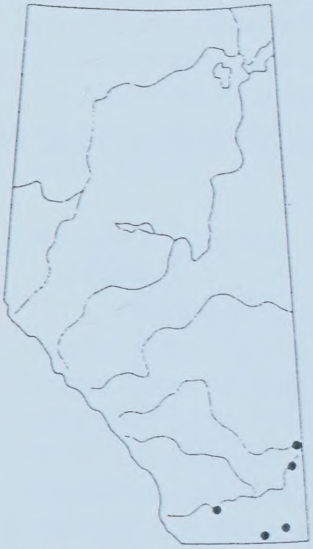
Map 2a. Provincial distribution.
Map 2b. Observed sites within Dinosaur Provincial Park, 1990.

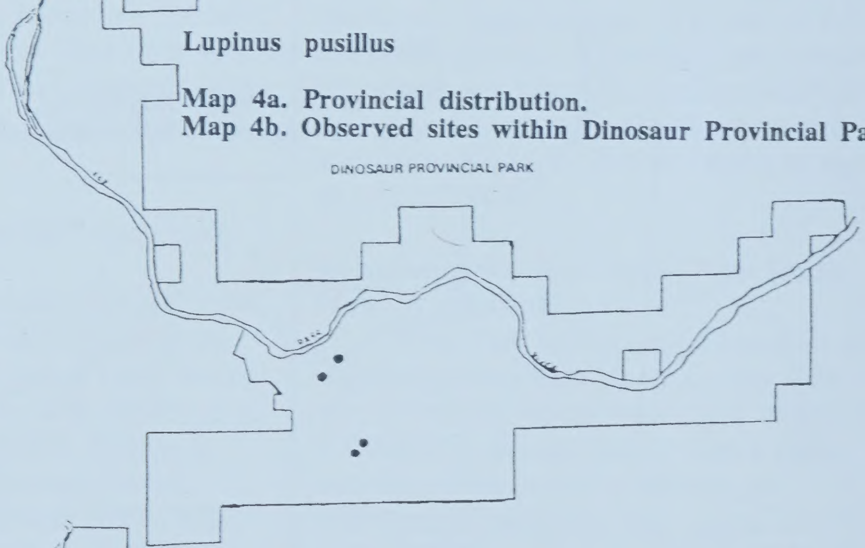



DINOSAUR PROVINCIAL PARK

Potentilla paradoxa

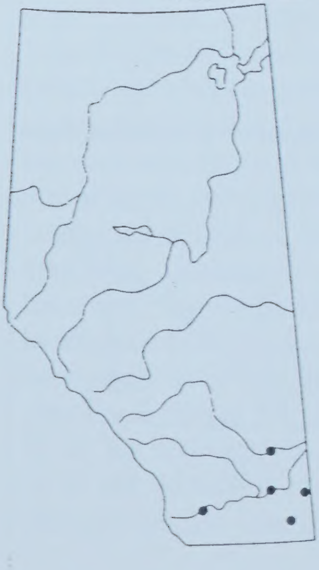
Map 3a. Provincial distribution.
Map 3b. Observed sites within Dinosaur Provincial Park, 1990.

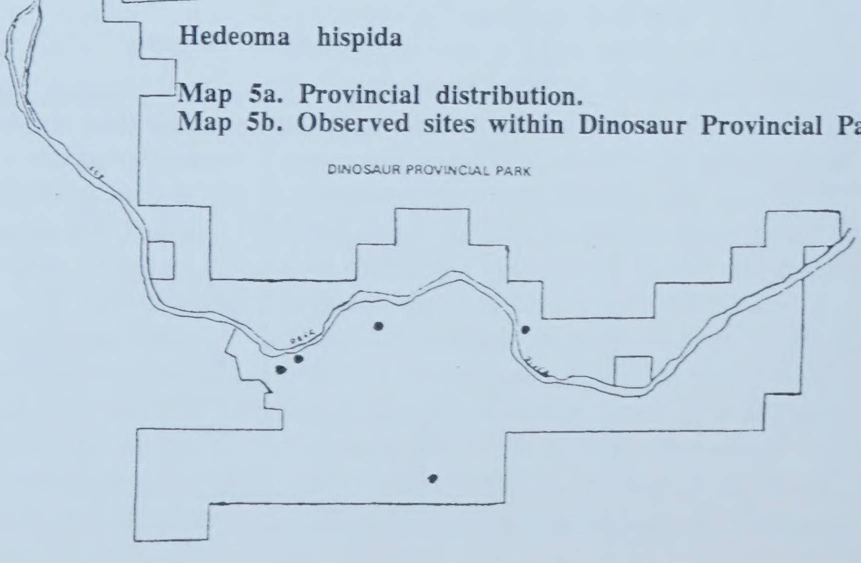



DINOSAUR PROVINCIAL PARK

Lupinus pusillus

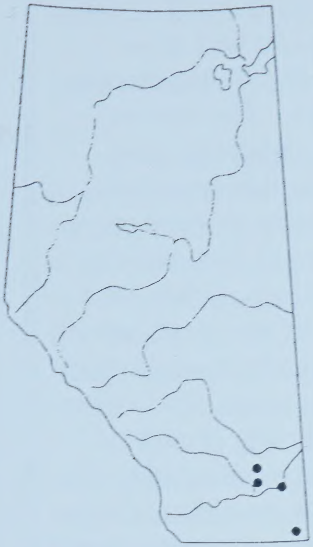
Map 4a. Provincial distribution.
Map 4b. Observed sites within Dinosaur Provincial Park, 1990.

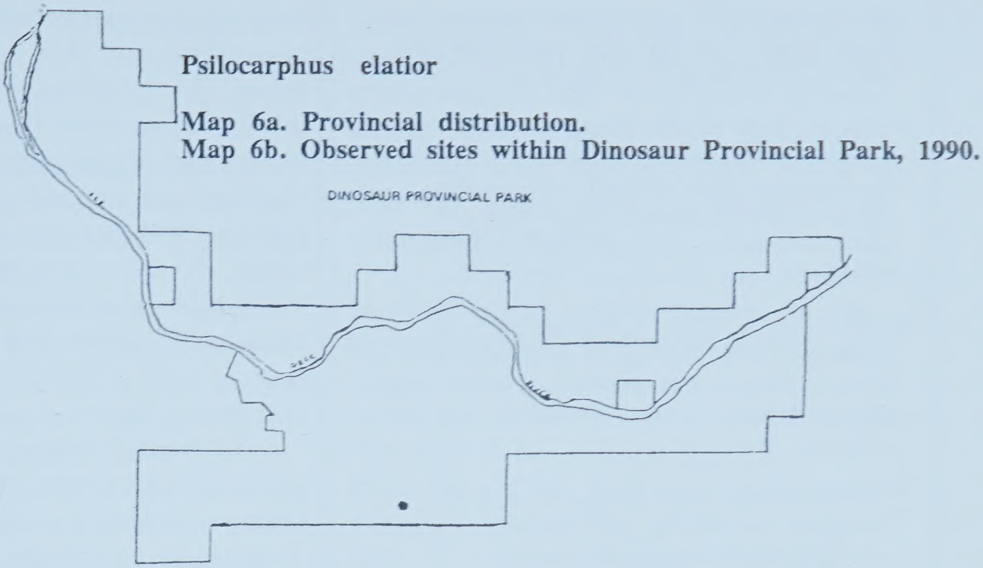



DINOSAUR PROVINCIAL PARK

Hedeoma hispida

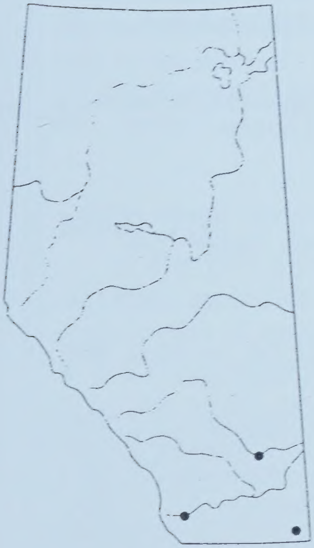
Map 5a. Provincial distribution.
Map 5b. Observed sites within Dinosaur Provincial Park, 199

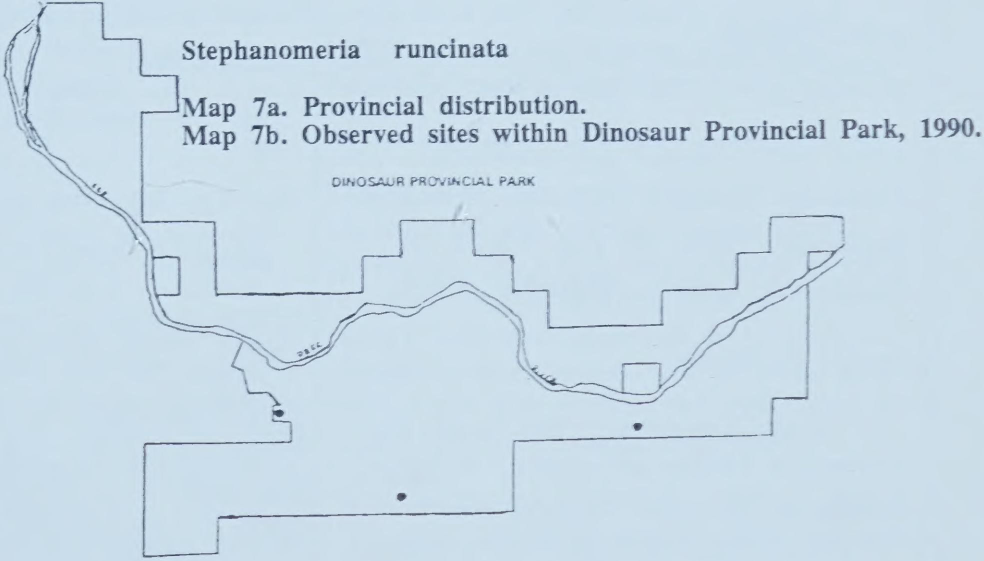




Psilocarphus elatior

Map 6a. Provincial distribution.
Map 6b. Observed sites within Dinosaur Provincial Park, 1990.





Stephanomeria runcinata

Map 7a. Provincial distribution.
Map 7b. Observed sites within Dinosaur Provincial Park, 1990.

Acknowledgements

I would like to thank Karen Herrmann for her assistance in the field and for primary species identification. I would also like to thank Bonnie Smith, curator of the University of Calgary herbarium, for providing access to catalogued samples and for her help in verifying rare specimens. Funding for this study was provided by both the Alberta Recreation, Parks and Wildlife Foundation and the Prairie for Tomorrow Project of World Wildlife Fund, Canada.

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Author's Address:
Geography Department, University of Calgary, 2500 University Drive N.W., Calgary, Alberta T2N 1N4.

Clammy Hedge Hyssop *(Gratiola neglecta)*, New to the Flora of Waterton Lakes National Park

George W. Scotter

While completing a hike across the Province of Alberta with a group of friends on July 7, 1989, I discovered a small clump of Clammy Hedge Hyssop *(Gratiola neglecta)* on a recently cut path between Lake Linnet and Highway 5 (49° 04' N, 113° 54' W, 1295 m elev.). These plants were growing in a moist depression near the centre of the trail. Specimens of the plant were collected, with permission of the Park Superintendent, and filed in the herbarium of the Northern Forestry Centre in Edmonton (CAFB). Clammy Hedge Hyssop has not been recorded previously from Waterton Lakes National Park (Kuijt 1982).

These annual plants, about 10-20 cm high, had many pale yellow flowers borne singly on long stalks within the axils of the opposite leaves. The corolla was two-lipped, the upper one shallowly lobed and the lower one three-lobed. The flowers were pouch-shaped, like miniature snapdragons, with a small purplish expanded portion. Although appearing to have seven sepals, the calyx consisted of five distinct sepals with an additional pair of secondary bracts. The upper parts of the plants were covered with sticky hairs which made them somewhat clammy to the touch.

Clammy Hedge Hyssop is rare to occasional throughout the prairies and southern parklands of Alberta (Moss 1983). It should be considered as an addition to the flora of Waterton Lakes National Park.

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Author's Address:
Canadian Wildlife Service, Rm. 210, 2nd Floor, 4999 - 98 Avenue, Edmonton, Alberta T6B 2X3.

Palmate-leaved Colt's-foot *(Petasites palmatus)* (Photo: S.C. Zoltai)

Alberta Bird Atlas - Project Update!

Petra Stubbs

As of January 1991, the Alberta Bird Atlas Project has completed four of the five years planned for data collection. (Time flies when you're having fun!)

Unfortunately, based on the cumulative data from 1987-1990, the ABAP faces a tremendous challenge if it is to meet its September 1991 target date for completion.

Hence, after a number of long brainstorming sessions the ABAP - having taken into consideration the size and morale of Alberta's naturalist community in relation to the size and ecological diversity of the territory to be covered - has devised an action plan for the 1991 field season.

Action Plan

The 1991 plan comprises five data collection processes - offering volunteers a wide variety of opportunities to contribute - to produce a meaningful and credible atlas. (The key words here are VOLUNTEERS and CONTRIBUTE!)

1. **Data From Existing Sources - During the ABAP timeframe,** 1987-1991, a number of government, nonprofit and private bodies have undertaken various data collection activities: wildlife inventories, bird counts, studies, casual notes, etc. A province-wide campaign to identify and persuade individuals to pass on data that can augment the atlas data information base will be implemented. Carolyn Seburn, a research assistant through PEP is already in place to assist in collecting and transcribing data onto cards for entry.

2. **Regional Coordinators/Volunteer Atlassers:** This approach represents the traditional method by which data have been collected since the project's inception. Our strategy for 1991 is to concentrate the efforts of this existing core of volunteers to completing squares further afield, and, to encourage volunteers in regions which are relatively well covered to atlas squares in neighboring regions.

    Additional squares in each region will be identified for local square-bashing field trips organized in collaboration with area natural history or bird clubs.

3. **Go For Remote!** - For the northernmost half of the province, the ABAP is recruiting skilled, backcountry, experienced volunteer atlassers for 32 trips to remote areas of northern Alberta. Interested volunteers will work closely with head office to plan and execute successful expeditions that collect data from 34 priority blocks.

4. **Block-Busting Teams:** Not unlike many other atlas projects that have had to devise final year thrusts to complete data collection, the ABAP must organize a series of block-busting teams to work in regions where volunteer manpower is insufficient. Employment programs such as STEP and SEED will give students the opportunity to spend an exciting summer in outdoors Alberta.

5. **Secondments:** Many of the active atlassers of the ABAP are employed by government agencies or major companies who are concerned about their image relative to the environment. A strategy to approach selected employers with a request to "loan" these staff members to the ABAP for one or two weeks was suggested by ABAP advisors.

    An extension of this approach would see the incorporation of atlas priority squares into 1991 work plans and fieldwork conducted by participating agencies. STEP positions could also be structured to provide some manhours in support of the ABAP.

Conclusion

The strategy outlined above is meant to provide the methods by which a minimum target can be reached in 1991. This target relies heavily on VOLUNTEERS, and hence is only limited by YOUR COMMITMENT! I can't emphasize enough the importance of getting out and 'covering your atlas' in 1991. If we all increase our dedication to this project, the end result will not only be an enjoyable and attractive book about the birds of Alberta - but as well, we will have the satisfaction of knowing we contributed to a credible data base worthy of basing future resource management decisions on.

Most importantly, atlassing can be fun! So if one of the methods above appeal to you, or you've thought of another way to contribute, please feel free to contact the Alberta Bird Atlas Project head office at the Provincial Museum of Alberta (453-9163). We look forward to hearing from you soon!

ABAP Address:
Provincial Museum of Alberta,
12845 - 102 Ave., Edmonton, Alberta T2N 0M6.

Announcements

Bamfield Camp

Once again the Federation of B.C. Naturalists is running the very popular week-long camp at Bamfield Marine Station. This year the camp will be held from September 1st to 8th and cost $450.00. This includes everything - a dorm bed, all meals, activities, and boattrips. The activities include field and lab sessions with everything from watching sea lions and gray whales to examining seaweed and barnacle larvae through a microscope.

For more information contact: Helen Akrigg, #8, 2575 Tomie Street, Vancouver, B.C. V6R 4M1, phone (604)228-8606, Fax: (604)738-7175.

Association of Field Ornithologists

Interested in the study of birds? You might enjoy membership in the Association of Field Ornithologists (AFO). They offer a quarterly Journal that includes articles on field research techniques and on the life history, ecology, behavior, migration, and zoogeography of birds. The journal includes Spanish abstracts, reviews of scientific articles published in other journals, and an annual supplement, Resident Bird Counts. Members also receive a bimonthly Ornithological Newsletter with job opportunities (paid and unpaid) and other scientific bird news, a chance to attend the annual meeting, discounts on mist nets, and more. Send $21 US ($15 US for students, $45 US for institutions) to AFO, c/o Allen Press, Inc., P.O. Box 1897, Lawrence KS 66044, or ask for their brochure (same address).

* * * * * *

Wolves

The Canadian Wildlife Service and the Canadian Circumpolar Institute are sponsoring the second North American Symposium on Wolves. The conference will take place in Edmonton from September 4th to 6th, 1991. If you would like more information about the symposium, or to be placed on their mailing list please write: Wolf Symposium '91, University of Alberta, Canadian Circumpolar Institute, 215 Central Academic Bldg., Edmonton, Alberta. T6G 2G1.

* * * * * *

Note: F.A.N. Spring Board Meeting

April 26, 1991...6:00 p.m. to 10:00 p.m. at Percy Page Centre in Edmonton. Directors are encouraged to also attend the Flowing to the Future Conference, April 25, 26, 27 & 28, at the Convention Inn in Edmonton.

Beaverhill Bird Observatory

Beaverhill Lake May Species Count--May 25 and 26

The Beaverhill Bird Observatory Society is hosting the May Species Count at Beaverhill Lake. Last year 99 species of birds were counted with over 12,000 individual birds sighted. We need as many participants as possible to cover such a large area. So, birders, if you can join us on either or both days, please contact Roy Fairweather (662-2157).

BBO Bird-a-thon May 26

The Beaverhill Bird Observatory Society will be holding a fundraising Bird-a-thon at Beaverhill Lake on May 26, midnight to midnight. The count will run concurrently with the above mentioned May Species Count under the Baillie Bird-a-thon program. Funds raised go to support the BBO and other avian study groups. If you are interested in participating as a sponsor and/or as a member of the count team, please contact Debra Belmonte (465-2370).

BBO Breakfast/Brunch--May 26

The Beaverhill Bird Observatory Society will host the annual "Pancake Breakfast" at 11:00 am. Participants in the May Species Count and the Bird-a-thon that day are encouraged to take advantage of this event and any one else interested in coming out to visit the field station is encouraged to attend. There will be a minimal charge to cover costs. Please contact Elain Holzapfel (428-7900) should you wish to attend.

WANTED--1991 Field Assistants

The Beaverhill Bird Observatory currently has openings for field assistants to work at the field station and assist volunteer avian studies. These are paid positions. Applicants should have previous training/experience in this field. Ideally, the applicant should include University or equivalent training in his/her resume. Please contact Stefan Jungkind (465-2370) for further info.

WANTED--Volunteer Observers

The Beaverhill Bird Observatory Society is currently looking for volunteers to assist in monitoring colonial nesters (e.g. pelicans, cormorants, herons, etc.). Please contact Stefan Jungkind (465-2370) for further information.

white pelican

Alberta Bird Atlas Program Yields Rarities:

Sage Thrasher and Northern Mockingbird Records for Bindloss

Michael D. O'Shea

During the summer breeding season, I surveyed a number of Bird Atlas grids in the Bindloss area, approximately 48 km south of Oyen, Alberta. The Bindloss area is composed primarily of arid, sagebrush native grassland bordered on the north by the Red Deer River and on the south by the South Saskatchewan River and the Suffield Military Block. There is some grain farming but most of the region is used for cattle ranching so much of the land is uncultivated.

Because of its isolation, dryness and proximity to the Suffield Military Block, the area still retains many of its native bird species such as reasonable numbers of McCowan's and Chestnut-collared longspurs, Lark Buntings, Loggerhead Shrikes, Grasshopper Sparrows, Burrowing Owls, Upland Sandpipers and Ferruginous Hawks.

1. Sage Thrasher sight record. A solitary Sage Thrasher was observed singing along the northern side of the Red Deer River valley near Bindloss on June 16, 199O. At this location, the river valley is wide with very dry, sagebrush grasslands. The Sage Thrasher was inhabiting a piece of over-grazed native grassland just below the coulee hills. It was singing on top of a low rosebush growing in the bottom of a shallow depression leading from a larger coulee in the hills beyond.

I didn't observe it again until one week later when I found it singing across the road in a small patch of sage and rose bush growing along an abandoned roadway. Owen Fieldberg, a local farmer and outdoor enthusiast, confirmed its identification later that day.

The Sage Thrasher was not seen when I checked the location again in July. Perhaps it was a single male searching for a mate and suitable nesting territory.

During the summer of 1988 and 1989, I found Alberta's first confirmed breeding record for Sage Thrashers south of Medicine Hat (O'Shea, 1988). Prior to 1988, only four sightings had been recorded in Alberta, all dated before 1958. The closest nesting record was from Eastend, Saskatchewan (Salt & Salt, 1976).

I noticed many similarities between the kind of habitat utilized by Alberta's breeding Sage Thrashers and by the 1990 Sage Thrasher. In both cases, the birds were found in or near the bottom of a valley. Both inhabited a shallow draw containing bushes. In both situations, the favored location was where the sagebrush was sparse (or mostly absent in the 1990 sighting) but in the vicinity of heavy sagebrush flats. In 1989, the thrashers nested in a thick patch of snowberry and rosebush. The 1990 thrasher was always close to patches of rosebush.

The major differences between the 1988-89 nesting habitat and the 1990 location were the locations and perhaps the aridity. The Medicine Hat sighting was north of the Cypress Hills where the altitude is higher and the grassland is moister than that around Medicine Hat. The Bindloss area is as arid or more arid than Medicine Hat. The Medicine Hat record was not near a river while the Bindloss record was.

2. Northern Mockingbird (Alberta's Third Nesting Record). From July 19 until August, 1990, I observed a pair of Northern Mockingbirds near the town of Cavendish, just west of Bindloss. The mockingbirds were living in the remains of a deserted oil town adjacent to a small processing plant of some sort. The area still retains rows of large cottonwoods and overgrown chokecherry and caragana hedges. The area was overgrown with thick annual weeds such as flixweed. The site is surrounded by arid native grassland and some cropland.

The birds were immediately recognizable as mockingbirds by their large size, long tails with white bars, distinct white wing patches and large bills. One bird (possibly the male) showed the typical black and white markings on the body. The second bird was identical except for having less vivid body markings (possibly the female). A pair of Loggerhead Shrikes (the only bird with similar field markings) nesting in a caragana hedge nearby provided easy comparison. The mockingbird's identification was confirmed by a number of people (Owen Fieldberg, Marie O'Shea, Wayne Smith and Merril Wershler) and photographs were taken.

I observed food carrying behaviour for over a month but never found an actual nest. However, on August 4, I observed both birds feeding a large, fledged nestling in a tall, chokecherry hedge. The nestling had a shorter tail, shorter bill and spots on the breast. It was shy and difficult to observe, keeping to the thick hedge. As a result of my observations, I suspect that the mockingbirds probably nested within this hedge.

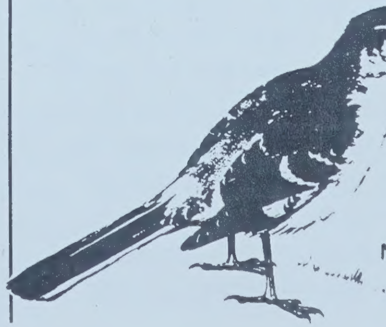
I have observed Northern Mockingbirds in Alberta before. A single bird was observed and photographed near Coaldale along the Oldman River in July of 1978. Single birds were also seen during the summer of 1978 at a farm near Lethbridge and at the St. Mary's Reservoir near Cardston.

More recently, three mockingbird sightings for Alberta were reported during the summer of 1988. A single bird was observed "for several days during the first week of June south of Lethbridge" (Dolman, 1988). One was seen at Dinosaur Provincial Park on June 5 (Riddell, 1988). A nest with 4 young was found near Esther in July and became Alberta's second confirmed breeding record (Alberta Naturalist 19(4):136-137).

A recent note in the Blue Jay magazine reports a Northern Mockingbird at Sylvan Lake from March 19 until March 28, 1990 (Abrahamson, 1990).

In the Birds of Alberta (Salt & Salt, 1976), the Northern Mockingbird is considered to occur locally and irregularly in the province.

3. Conclusions - The Alberta Bird Atlas program should provide a useful visual map of Alberta's nesting bird species. Yet from my recent experience, I believe it may provide us with even more.
The project has encouraged me to investigate areas that I may have overlooked while casually birdwatching. The program has encouraged me to practise a more thorough and unbiased sampling method. The results have been fruitful - 1 Northern Mockingbird and 2 Sage Thrasher records. Perhaps this project will provide even more exciting surprises.



Northern mockingbird

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Author's Address:
General Delivery, Bindloss, Alberta T0J 0H0.

Game Ranching in Alberta - 1990 Summary and Recommendations

A Brief from the Federation of Alberta Naturalists

The original system of land-tenure in Europe assigned ownership of all living things, human and otherwise, within the boundaries to the owner of the land. The ownership of human residents has been everywhere abolished, but only in North America have governments embarked on a grand experiment to eliminate the last vestiges of the feudal system from our lives: we chose to eliminate the opportunity for the private landowner to sell for slaughter the wildlife which, at a critical moment, happened to be on his land, to remove wildlife from private ownership. To one degree or another, several jurisdictions both in Canada and in the United States have backed off from that experiment by permitting the ranching of wildlife, even to permitting the ranching to exotic competitors to wildlife. Not one of the jurisdictions surveyed by the Wyoming Fish and Game Commission reported smooth progress. Every one either has introduced greater restrictions to its game ranching program, whether by legislation or regulation, or is considering doing so. (At the time of the survey, this was true of Alberta also, which had just restricted new captive stock to Alberta origins, and had not yet broached expansion to meat production.) Not one of these jurisdictions could properly assess the cost to the taxpayer of game ranching, though truly horrendous figures exist in a few cases in connection with control of population of escaped exotic species. Nor were figures available to substantiate sufficient advantage to the private producer to offset the real losses to the ordinary person, who used to be the owner, through the government, of these animals. We should like to emphasize that in Alberta, none of the relevant figures, whether those substantiating the benefits to private operators of game ranches, or those detailing the cost to the taxpayer, have been made available to the public of the province, who were until recently, the sole owners of the animals involved in this enterprise. It is worth remembering that when we speak of "Crown" property, we mean "public" property.

We would therefore recommend that the Province of Alberta return ownership of wildlife to the Crown, return to its former total ban on the sale of any wild animal parts, and return the control of its wildlife to an agency with the knowledge and commitment to manage it appropriately: Fish and Wildlife. The course on which we are embarked is not only one which is likely to be extremely costly, both to the private producer of captive wildlife, but to the taxpayer and producers of domestic stock, but one which violates some of the most deeply held beliefs of the public of this province concerning the nature and proper management of wildlife.

Maryhelen Posey, Chair, Land Use Committee.

Golden-crowned Kinglet Nest Record for Ft. Saskatchewan, Alberta

Wolfgang Hoffmann

To the untrained eye, nests of many of the smaller forest birds are well-concealed, making them very difficult to find. That's by design. Ultimately the birds' survival depends on it. The Golden-crowned Kinglet nest was no exception. Hidden high (10 metres) in a stand of mature spruce, it took an experienced field observer to see it.

Trevor Roper, of Ft. Saskatchewan, has a knack for locating such hard-to-find nests. His efforts and patience have paid off, repeatedly, in finding the territories and subsequently the nests of some of the most elusive subjects, including the Orange-crowned Warbler, and in this case, the Golden-crowned Kinglet.

On July 15, 1990, Trevor noticed a Golden-crowned Kinglet, at ground level, carrying a ''green worm''. He recalled hearing them before throughout the year, but because they were always flitting about somewhere high up in the conifer canopy, he had overlooked them all too easily. Now, to him, a bird carrying food meant one thing -- a nest was close by. If he could keep the kinglet in view, chances were good that it would point out the nest.

Gradually the kinglet worked its way up through the branches, zigzagging erratically towards where the nest was presumed to be. From the ground you couldn't really make it out. The feeding was quick -- and easily mistaken for any of the other pauses en-route up through the branches. But Trevor recognized it for what it was. He watched as both adults returned, at intervals, bringing a variety of insects, spiders, and spruce budworms to the nest. When he climbed to view the nest, the male kinglet approached, with its bright yellow-and-orange crest flared, protesting. The female, lacking the orange in her crest, seemed less agitated by the inspection.

My primary goal in locating bird nests has always been to make photography simpler -- and secondarily to learn as much about the birds' behaviour in the short time that one has contact with them. Photography of non-breeding birds, on the other hand, is largely a hit-and-miss thing. Having a nest, as you might expect, pins the birds down, allowing close range study. Yet with all the advantages of having a blind near the nest, photography during the nesting season also has its drawbacks. Often the birds' plumage is at its worst while they are tending a nest, caring for their young. The Golden-crowned Kinglet I photographed, was such a case -- particularly the female. She appeared unkempt, almost ratty, from her tireless sorties and her squeezing in-and-out through the dense needles where the nest was situated.

A tower had been set up in order to get the camera up to the level of the nest. It was found that a blind was not really needed. However, the closed-in nature of the nest posed problems. The moss cup, finely-lined with feathers, was suspended by several small trailing twigs coming off a main limb. Here the kinglets snuck in from below and behind the densest cover. Poses in the open were rare.

On July 22, the seven young were observed leaving the nest -- in succession. Occasionally they would return for a short time. By late that afternoon they had all fledged, and the adults were busy keeping track of their whereabouts by sound.

This nest was located in a mixed

Golden-crowned Kinglet at nest (Photo: W. H. Hoffmann)

boreal forest, growing on a sandy substrate. It was found in a mature stand of white spruce, having a southwest aspect in the tree that it was in. The site was several miles northeast of the Scottford/Ft. Saskatchewan Petrochemical Complex (9-56-21W4).

Salt, 1966, indicates that the Golden-crowned Kinglet, as a breeding bird, has a mountain and foothill distribution in Alberta. It has also been observed during the breeding season across far northern Alberta and in the Swan Hills. Godfrey, 1966, shows a similar distribution. Both texts agree that very little is known about the status of the Golden-cronwd Kinglet in Alberta, likely because of the difficulty in finding their nests. We do not know if this nest record is an isolated occurrence. However the presence of several other birds of this species in the vicinity at the same time, suggests that they are present in small numbers -- and possibly nesting. Trevor Roper mentions that he has seen and heard them in other years, at various times of the year, including the nesting season.

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Godfrey, W.E. 1966. The Birds of Canada. National Museum of Canada, Bulleten 203. 428 pp.

Author's Address:
133 Kaskitayo Court, Edmonton, Alberta T6J 3T3.

Book Reviews

A Field Guide to Western Birds

Roger Tory Peterson
Houghton-Mifflon Co. 1990 $19.95

Once or twice in a decade there occurs a red-letter day for birdwatchers when a new field guide comes along to give them joy and improve their competence in the field. The publication last year of A Field Guide to Western Birds by Roger Tory Peterson was certainly such an event. The first Peterson book with this title was published in 1941; the second edition came out in 1961. The third edition was almost overdue, but it was well worth waiting for. The two earlier guides were good; the best in their day, but this latest one is completely revised and much improved.

In 1980 Peterson published A Field Guide to the Birds East of the Rockies, but this book was not what it claimed for it left out about ten percent, (21 species) of Saskatchewan birds. In the meantime, two excellent field guides made an appearance, a new edition of the Golden Guide, Birds of North America, and the National Geographic Society's book of the same title, a hard one to beat, and both published in 1983. The Audubon Society put out a guide in 1977. For comparison with the new Peterson guide we will consider only the Golden and Geographic books.

The Golden guide, which this reviewer has used, along with others, for thirty years is lighter and less costly than the National Geographic guide. The latter, however, is better bound and will take more use in the field. Backpackers may prefer to leave the National Geographic guide at home and take one of the other lighter and less bulky books. The new Peterson guide appears to be very well bound. It is heavier than the Golden guide with 20 percent more pages (432) but lighter than the Geographic guide which has 464 pages and a larger format. In price, Peterson's field guide comes somewhere between the two.

The new Peterson's has one important advantage over the other two. As in all Peterson's guides, this third edition has arrows that point to the distinguishing field marks of every species, so that when you have a bird in your binoculars, you know what to look for without taking time to read the text.

The major disadvantage of the book is that the range maps are all bound together at the back of the book instead of appearing with the species illustration and description. The range is, however, stated in the text.

Illustrations are greatly improved over the 1961 edition with a colour plate facing each page of text so that the illustration of a species comes exactly opposite its description. The earlier editions both were lacking this convenience. I find little fault with the colour in the illustrations. They are at least equal to those in the National Geographic guide and superior to those in the Golden book. Description in the text is concise. It is adequate for a field guide. Songs and calls are described and often are translated into human sounds, or they may simply be described in everyday adjectives. Sometimes a combination of the two has to be used. For example, the call of the Hairy Woodpecker is described as "a kingfisher-like rattle, run together more than the call of the Downy." It goes on to describe the Hairy's single note, "Peek." (The Downy says "Pick.") Some observers find the sonograms in the Golden guide a real plus, but it is the only book that I know of which uses this method of identifying birdsong. The great plus of the Peterson guide is that recordings and cassettes produced by

Cornell University have long been available to match the pages of the books.

Neither Peterson's nor the other field guides give any information about nests or eggs, but again another of the Peterson series comes to the rescue. It is called A Field Guide to Western Birds' Nests by Harrison. You may also use Birds of Alberta to learn more about the nesting habits and life histories of birds found within the province. This makes an excellent companion book to your field guide.

The heyday of the birdwatcher is passing with the twentieth century as many of the thousands of the world's species become scarcer, or in danger of actual extinction as earth's burgeoning human population destroys habitat and creates pollution at the expense of wildlife. Still, we may be sure that birdwatching as a recreational pastime will continue long into the twenty-first century. Roger Tory Peterson's A Field Guide to Western Birds will be one of the tools that will help make this leisure-time avocation more pleasurable and more rewarding.

Fred Schutz

* * * * * *

Sharing the Joy of Nature

Joseph Cornell
Dawn Publications, California, U.S.A. 167 pp. $9.95

This sequel to Sharing Nature with Children offers sixty-four nature awareness activities but more importantly, it covers the principles of Flow Learning in depth.

As a teacher, Cornell's Flow Learning system made a great deal of sense to me. Optimum learning takes place when a person's natural curiosity and enthusiasm is awakened and directed. These are principles one tries to implement and attain in the classroom and apply to all learning situations.

Joseph Cornell has carefully chosen activities that follow each other in a logical sequential fashion, each building on the experiences of the last. There are four stages to flow learning: Stage 1. awaken enthusiasm, Stage 2. focus attention, Stage 3. direct experience, and Stage 4. share inspiration. The activities which fall under each stage are clearly labeled and have enough variety to suit every group's age, mood and the environment being worked in.

I utilized the principles of flow learning and several of the activities from Sharing the Joy of Nature when giving a Brownie Leader Workshop. I, along with my group of Brownie leaders, learned a lot about an area I thought I knew very, very well. Some of the activities I used were Animal Clue Game, Nature Bingo, Sound Map, Unnature Trail, Mystery Animal and Recipe for a Forest.

All in all, Sharing the Joy of Nature is a very practical book with some wonderful activities. Whether you are a teacher, parent, outdoor group leader or just interested in some activities that will get you in closer touch with your environment, I think you will find this book a valuable tool.

Lisa Murphy

Brown thrasher

1990 May Species Count for Birds and Mammals

Ross Dickson

The provincial May count was highlighted by 3 new bird species, rather than the extreme weather episodes reported in recent years. A total of 240 species were found in the fourteen count areas shown in Table 1.

Once again, Calgary reported the most species (170) from a count area, in part because the area contains the most varied habitat as well as the largest number of active observers. Several areas showed species increases over the previous count. It has been necessary to combine some areas in order to make this comparison. The biggest increase (39%) was at Banff/Yamnuska, despite showers each day. Other areas with species increases over 1989 were Red Deer (13%), Medicine Hat (10%), Cypress Hills (9%) and Lethbridge/Claresholm/Cardston (7%). At Medicine Hat, the increase in part was due to seven first-time species. In all of these places, the number of observers was greater than in 1989, which may have made possible more complete coverage.

Weather did not appear to be a major factor in finding birds during the count weekend, although precipitation was recorded in nearly all areas. Winds were generally light, except for one day at Waterton. Had the count been held at any other time in the month, observers would have encountered the torrents of rain which caused widespread flooding in central and western Alberta. Many early waterside nesters lost their nests. Later surveys of waterfowl by provincial wildlife officers indicated that there was a high rate of re-nesting. Waterfowl numbers in general were similar to those reported in 1988, after a dip in 1989.

Three new species were reported in 1990. Garganey, Whooping Crane and Northern Shrike could be considered somewhat unexpected. A male Garganey, seen near Taber was one of an unprecendented 12 Garganey reported in May across North America from California to New Brunswick (American Birds 44(3):regional reports). The species winters usually in west Africa and breeds in Europe and Asia. The only previous Alberta record was from Strathmore in June 1982.

The sighting of 18 well-described Whooping Cranes flying over the Oldman River south of Lethbridge is of considerable interest. The date is about a month later than the usual migration. Ernie Kuyt of the Canadian Wildlife Service had just completed the annual breeding range survey in Wood Buffalo National Park. Nesting had been underway for about a month by older pairs and for about three weeks by younger birds. This means that the Lethbridge birds must have been non-breeders. Mr. Kuyt did eventually account for all but 13 birds of the 141 wild cranes which survived the previous winter. Given the Alberta weather conditions - mid May was very wet and overcast - young birds without a nesting urge may have waited for better travelling conditions. It could take less than 3 days of travel from southern Alberta for some or all of this flock to arrive at Wood Buffalo National Park and be counted. It is well known that subadult Whoopers may wander from the main migratory route. One (or possibly two) unbanded yearlings were seen through the 1990 summer at three Alberta locations which were Samson Lake near Ponoka, north of Sundre and at Buffalo Lake (E. Kuyt - pers. comm.).

More confusing is the large number, since Whooping Cranes generally fly in small groups of six or less. The large number is unprecedented for a migrating flock, according to Mr. Kuyt, since he has never seen a flock larger than ten birds. However, a flock of 24 was seen at close range near Cochrane - itself considerably off the main migratory path - on September 19, 1974 (Alberta Naturalist 6(1):29).

Identification of an apparent immature Northern Shrike straggler near Grande Prairie added a third new species to the provincial count. Observers should be aware that migration of the two shrike species may occasionally overlap, as Loggerhead Shrikes are known to nest in that area (Ellen Craig - pers. comm.).

The following section lists each count by participants involved and the locations covered along with distance and weather information, if available.

Lethbridge May 26 & 27. Teresa Dolman, 37 Caleton Rd. W, Lethbridge, AB T1X 3X4, Participants: Lloyd Bennett, Anne & Bill Brown, Linda Cerney, Ken Clark, Lorna Cordeiro, Teresa & Doug Dolman, Elizabeth Fish, Patricia & Graeme Greenlee, Betty Haig, Bob Hall, Harcourt Hobbs, Alice & Frank Harper, Alice Luchansky, Betty & George Luco, Jennifer & Lynn Mather, Alice Matisz, Lois Mcillop, Julia Millen, Sheila Petherbridge, Joanna Pinto, Katherine & Frank Russell, Liz Savoy, Peter Stockdale, Mary Thomson, Jay VanderGaast, Doug Walker, Hazel & Russell West, Joyce & Paul Wilkinson. Locations covered: Botterill Park, Henderson Lake, Alexander Wilderness Park, Pavan Park, Peenaqim Park & sewage lagoons, Lethbridge Nature Reserve, Elizabeth Hall wetlands, Park Lake Provincial Park, Keho Lake, Animal Diseases Research Institute, Jail Lake, McQuillan Lake, Taber townsite, Taber Provincial Park Taber Lake, Fincastle Lake area, Six-mile Coulee to Sugarbowl Coulee, Russell farm & area, Luco & Rollingson riverbottom areas, Tyrrell Lake, Rush Lake, Ridge Reservoir. Team hours 90 and team distance 547 km. Weather: May 26; 6-14C, wind North at 20-25 kmh, precipitation 2.8 mm. May 27: 7-17C, wind light from Northeast.

Cardston May 26 & 27. Teresa Dolman. Participant: Shirley Sillito. Total hours 24 and distance 226 km. Weather: May 26: 5-15C, winds light, showers.

Claresholm May 26 & 27. Teresa Dolman. Participants: Ruth & Jason Attwell, Hazel Hudson, Grace Norgard, Al Williams. Team hours 26 and distance 482 km. Weather: May 26: 8-18C, winds light, showers.

Waterton June 2 & 3. Teresa Dolman. Participants: Teresa & Doug Dolman, Betty Haig, Lois McKillop, Gordon Ross, Shirley Sillito, Janice & Fraser Smith, Mary Thomson, Doug Walker. Locations covered: Chief Mountain road, Belly River campground, Red Rock Canyon road, buffalo paddocks, Cameron Lake road, Bertha Lake trail, Main Entrance road, Crandell Lake campground, Waterton townsite. Team hours 31 and distance 146 km. Weather: June 2: 3-16C, winds South 15-20 kmh, precipitation 6 mm. June 3: 5-11C, winds South at 30-40 kmh, precipitation 3.5 mm.

Medicine Hat May 27. Dennis Baresco, 580 Fi5rst Street SE, Medicine Hat, AB T1A 8E6. Participants: Bessie Anderson, Dennis Baresco, Mike Betts, Grant Bray, Barb Chisholm, Ann & Kevin Corcoran, Eileen Cowtan, Dawn Dickinson, Lina & Fred Flaig, Bob Frews, Corlaine & Rob Gardner, Heather Gaze, Phil Horch, Anna Johnston, Lex Karne, Valerie Martins, Peter Mehrer, Beth & Gordon Milne, Gary Newton, Mr. & Mrs. J.E. Newton, Mark Oxamitny, Dan & Mark Schiebelbein, Lenore & Doug Shepard, Brent & Charlene & Jemma & Shawn Skidmore, Bob Townsend, Ben & Michael Velner, Nick Worthington. Team hours 93 and distance 514 km. Also seen were Buteo (sp) 8, blackheaded gulls 28, whiteheaded gulls 267. No weather information.

Banff-Canmore May 27. Mike McIvor, Box 114, Banff, AB T0L 0C0. Participants: Ruth Buskevicius, Peter Duck, Tineka & Alan Hipkins, Frida Lammens, Diane & Mike McIvor, Bob Smith. Team hours 28 and distance 146 km. Weather: 5-11C, calm, showers.

Yamnuska May 26. Mike McIvor. Participants: Janet Amy, Ruth Buskevicius, Paulo Costa, Morag Dmian, Peter Duck, Jean Greig, Tineka & Alan Hipkins, Frida Lammens, Diane & Mike McIvor, Aileen Pelzer, Bob Smith, Gail Van Tighem, Roger White, Eva Zidek. Team hours 19 and distance 75 km. Weather: 6-12C, light wind, overcast with midday showers.

Calgary May 26 & 27. Jim Washbrook, 1056 Deer River Circle SE, Calgary T2J 6Z7. Participants:

John Bargman, Ross Dickson, Jean & Rodger Dunn, Ingrid Ektvedt, Lind Evasiak, Joyce Goldsmith, David Gravells, Horst Grotman, Michael Harrison, Evelyn & Ken Hayden, Andrew Holder, Gary Hornbeck, Clay Hunt, Joanne Jamieson, Kate Jones, Steve Kassai, Estelle Kethler, Gerhardt Lepp, John McFaul, Bill McKitterick, Steve Patterson, Jamey Podlubny, Kay & Mike Power, Gwen Simpson, Andrew Slater, Ena Spalding, Don Stiles, John & Nicolas Totino, Howard Troughton, Jim & Ted Washbrook, Merril Wershler, Marian White, Bill Wilson, Allen & Martin Wiseley. Locations covered: Springbank, Irricana sloughs, Bruce Lake, Water Valley, Carseland, Fish Creek & Bow Valley Provincial Parks, Carburn & Confederation Parks, Glenmore Park and Weaselhead Natural Area, Inglewood Bird Sanctuary, Dalemead Reservoir, Strathmore sloughs, Eagle & Namaka Lakes, Lac des Arcs, Sibbald Creek trail, Mt. Indefatigable. No time or distance information. Weather May 26: 4-15C, wind ENE to 30 kmh, precipitation 1.6 mm. May 27: 4-16C, wind East 0-15 kmh, partly cloudy.

Red Deer May 26 & 27. Myrna Pearman, Box 127, Sylvan Lake, AB T0M 1Z0. Participants: Patricia Allin, Karen Brassington, Dorothy Dickson, Helen & Herb Harris, Dorothy Hazlett, Laura Larsen, Murray Mackay, Carolyn McCullough, Mike McNaughton, Sharon & Graham Murphy, Tessie & Percy Palmer, Myrna Pearman, Beth & Albert Peck, Marie & Tom Pierce, Jim Potter, Jay Wieliczko, Marjorie & Kerry Wood. Locations covered: City of Red Deer, Slack's Slough, Medicine Lake grazing reserve, Pine Lake, Knee Hill Valley (including Horseshoe Lake and Innisfail Natural Area), Anderson Creek Natural Area, Gull Lake, Benalto. Team hours 64 and distance 540 km. No weather information.

Mirror May 27. Participants: Ann & Charles Bird, Don Carlyle. Locations covered: Bird farm and the Narrows both about 3 miles ESE of Mirror. Weather: scattered cloud, SE wind, 15-20C.

Stettler May 26 & 27. Lloyd Lohr, Box 1414, Stettler, AB T0C 2L0. Participants: Bertha Clarke, Blair & Stuart Fix, Gladys & Wilf Hewlett, Eva Kirtley, Lloyd Lohr, Grace & George Neill. Team hours 20 and distance 362 km. Weather May 26: sunny changing to showers 1-17C. May 27: calm & sunny changing to windy & showers, 10-21C.

Edmonton May 26 & 27. Jim Lange, 13216 - 128 Avenue, Edmonton, AB T5L 3H2. Participants: Andy Boyd & Sherwood Park Fish and Game Association members, Bob Carroll & group, Dick Dekker, Roy Fairweather, Brian Hornby, Jim Lange & bird course members, Ed Mah-Lim, L. Munro, Eve Neaubauer, Beryl Park, Gladys Vogel, Linda Whittingham. Locations covered: Beaverhill Lake, Elk Island National Park, Hastings Lake area. Team hours 73 and distance 174 km. No weather information.

Grande Prairie May 26 & 27. Ellen Craig, R.R.#1, Wembley, AB T0H 3S0. Participants: Ellen & Gavin Craig. Locations covered: Hermit Lake, Bear Lake, Lake Saskatoon, Cutbank Lake, Uswells Lake, Wembley. Team hours 6 and distance 48 km. No weather information.

Prairie falcon

Table 1.

MAY SPECIES COUNT - 1990

	LETH	WATE	CARD	CLAR	MHAT	CYPR	BANF	YAMN	CALG	REDD	MIRR	STET	EDMO	GRPR
Common Loon		1	2				1	2	8	1		2	5	6
Pied-billed Grebe	3			1					5	6			3	3
Horned Grebe	11		4	2	4		2		24	56		10	18	
Red-necked Grebe	3		35			5	2		23	130			80	6
Eared Grebe	174		6	51	11	21			347	98		2	643	30
Western Grebe	345				1		3		69				24	11
Am White Pelican	166				68				148				58	
Dbl-cr Cormorant	48	3	4	1	10	8			103	1			75	
American Bittern	1	1							4				5	
Great Blue Heron	9	2	5	1	41	4			39	6		1	12	1
Blk-cr Night-heron	4								16				16	
Tundra Swan									3	2				
Trumpeter Swan	2	wk	2						2					12
Canada Goose	1395	10	255	298	555	40	52	6	1413	516	2	97	225	16
Wood Duck					5		2							
Green-winged Teal	27	2	2	1	4		4	2	31	45	2	27	31	8
Mallard	227	22	115	83	303	39	39	3	560	274	3	126	162	760
Northern Pintail	192	2	43	21	96	2			115	12	2	19	46	227
Garganey	1													
Blue-winged Teal	139	7	72	19	67	11	4		273	93	14	131	276	14
Cinnamon Teal	51		12	7	3		1		107	20	1	1	4	2
Northern Shoveler	128		60	49	61				246	46	1	74	261	127
Gadwall	120		46	91	40		3		92	65	2	33	104	40
Eurasian Wigeon														1
American Wigeon	47	1	6	5	34	27	2		124	20		14	49	48
Canvasback	37		3	3	9	6			225	20	2	24	41	28
Redhead	115		28	37	4	2			289	72	4	29	88	28
Ring-necked Duck	19	10		9		8		6	16	31			22	2
Greater Scaup									12					
Lesser Scaup	193		28	49	19	8		4	401	93	8	35	342	767
Harlequin Duck									5					
Oldsquaw									2					9
Surf Scoter									2					4
White-w Scoter	30					1			22	21			24	233
Common Goldeneye	8			2					107	90			71	1
Barrow's Goldeneye	2	28	49				1	3	10					
Bufflehead	35					3	4	8	44	58	1	26	244	16
Hooded Merganser									3				12	
Common Merganser	17	6	4	1	17		7		70	3			1	
Red-br Merganser													4	
Ruddy Duck	82		24	87	12	2			71	77		6	198	12
Osprey		2				1	2		7	3				
Bald Eagle							2		1					
Northern Harrier	27	14	wk	wk	8	2			9	10		2	5	9
Sharp-shinned Hawk		1		wk		1		1	3	1			1	
Cooper's Hawk	2	1			2				4					
Northern Goshawk		1				2			3	3				1
Broad-winged Hawk						5							1	
Swainson's Hawk	38		23	80	36	5			83	4	1	5	3	
Red-tailed Hawk	19	9	4	20	4	11	1		91	46		22	21	21
Ferruginous Hawk	5		1		1									
Rough-legged Hawk									3					2

MAY SPECIES COUNT - 1990

	LETH	WATE	CARD	CLAR	MHAT	CYPR	BANF	YAMN	CALG	REDD	MIRR	STET	EDMO	GRPR
Golden Eagle	2	2	wk		2				2					
American Kestrel	25	1	3	7	43		1	1	37	18				2
Merlin	3		2	3	10				9			1	3	
Peregrine Falcon													3	
Prairie Falcon	3				1				1					
Gray Partridge	31		10	9	11				9	5			2	4
Ringed-n Pheasant	33		9	11	47				21	9			1	2
Spruce Grouse		1												
Blue Grouse									2					
Ruffed Grouse		3	2	wk		3		4	10				5	13
Sharp-t Grouse									2	12				
Wild Turkey						8								
Sora	3	3		2		2	1	1	10	6		10	21	
American Coot	148		85	15	12	12		3	187	248	1	40	427	347
Sandhill Crane													3	
Whooping Crane	18													
Black-bel Plover	315				1				1			13	591	
Less Golden-Plover	5												13	
Piping Plover	2												2	
Semipalm Plover					17								1	
Killdeer	82	1	35	32	78		9	3	112	29	2	17	55	14
American Avocet	71		6	18	10				79	35	4	53	100	
Greater Yellowlegs					1							4		
Lesser Yellowlegs	wk									6	8		11	1
Solitary Sandpiper								1					2	
Willet	28		3	6	39				32	1		2	35	
Spotted Sandpiper	30	6	33	8	33	5	5	7	69	25		1	6	
Upland Sandpiper									1					
Whimbrel	1												1	
Long-billed Curlew	27		11	25	17									
Marbled Godwit	30		1	13	22				41	2		5	41	
Ruddy Turnstone													44	
Red Knot													133	
Sanderling	22												170	
Semipalm Sandpiper									212				4320	
Least Sandpiper	1								4	6				
White-r Sandpiper									wk				190	
Baird's Sandpiper	4												80	
Pectoral Sandpiper														4
Stilt Sandpiper									21				1026	4
Buff-br Sandpiper													6	
Long-b Dowitcher									5					
Common Snipe	6	6	16	wk	5	13	3	4	27	19		3	33	
Wilson's Phalarope	78	1	69	36	10				151	2	30	25	120	4
Red-neck Phalarope	1								4				4	
Franklin's Gull	458		5		27	52			587	477	8	4	463	555
Bonaparte's Gull	1				20				2	17			46	
Mew Gull														1
Ring-billed Gull	320	5	178	26	241	38	3		421	290		21	93	24
California Gull	157			11	36	34			133	70		58	4	
Herring Gull													2	1
Common Tern	39			3	24	14			72	1	1		18	2
Forster's Tern	3				1				31	3			29	

MAY SPECIES COUNT - 1990

	LETH	WATE	CARD	CLAR	MHAT	CYPR	BANF	YAMN	CALG	REDD	MIRR	STET	EDMO	GRPR
Black Tern	30		25	2	2	21			280	306	1	61	513	34
Rock Dove	134		36	77	663				112	165	2	18	10	6
Mourning Dove	148		16	26	119	7			31			2	3	
Great Horned Owl	21	3	1	19	17	2			2	9			3	5
Burrowing Owl	1			6										
Barred Owl							1							
Great Gray Owl									2					
Long-eared Owl				wk	3									
Short-eared Owl	4		1	1	2									
N Saw-whet Owl						1								13
Common Nighthawk	2				3									
Ruby-t Hummingbird									3	8			2	
Calli Hummingbird		1						3	1					
Ruf Hummingbird		4	1				1		9					
Belted Kingfisher	6	1	6	2	4	2	1		7	1				
Yel-b Sapsucker					2	5		2	8	7		1	10	
Red-n Sapsucker	1	6							2					9
Downy Woodpecker	7			wk	22	4			15	16	2		4	
Hairy Woodpecker		wk			2	1	2	1	7	9			5	4
Northern Flicker	26	4	11	5	42	4	3	3	57	11	2	1	5	2
Pileat Woodpecker		wk					1	1	2	6				
Olive-s Flycatcher	1	1		1					2					
Western-w Pewee	28	1	4	6	10	2		1	22	4			9	1
Alder Flycatcher	5								2	1			2	
Willow Flycatcher		1		2										
Least Flycatcher	52	6	13	4	36	19	2	18	188	53	6	7	133	4
Hammond Flycatcher									1					
Dusky Flycatcher		1				10			1					
Western Flycatcher				wk					2					
Eastern Phoebe	2			1					21	9		2	13	
Say's Phoebe	3			1					1					
Great-c Flycatcher										1				
Western Kingbird	93	wk		15	188				17					
Eastern Kingbird	108		19	29	248	3	1		51	7	2	3	5	1
Horned Lark	239		16	134	462				27			1	6	
Purple Martin										38	21	14	6	
Tree Swallow	36	13	17	117		22		11	437	228	12	66	253	4
Violet-gr Swallow					24	2		6						
N Rough-w Swallow	43		10	110	27	5			244					
Bank Swallow	78		262	51	173	19			613	136		6		11
Cliff Swallow	235	100	6		91	13			678	10			325	100
Barn Swallow	136	4	33	168	60	2	3		204	45	5	69	68	16
Gray Jay		7					3	4	3					
Steller's Jay		6												
Blue Jay	1								19	13		4	4	6
Black-b Magpie	149	5	34	72	532	15	11		445	132	6	47	48	19
American Crow	55	15	39	63	54	49	9		225	160		183	56	27
Common Raven		4	4	18		1	6	3	72	3				1
Black-c Chickadee	20	1	2		26	17	4	1	91	61	2	10	10	8
Mtn Chickadee				1			2	2						
Boreal Chickadee							1			3			2	
Red-br Nuthatch	13	18	6	5	1	4	5	6	27	14			2	
White-br Nuthatch	vk	1							2	1			2	

MAY SPECIES COUNT - 1990

	LETH	WATE	CARD	CLAR	MHAT	CYPR	BANF	YAMN	CALG	REDD	MIRR	STET	EDMO	GRPR
Rock Wren	6				13									
House Wren	137	12	20	22	223	17			97	33	1	5	20	
Winter Wren		2												
Sedge Wren													1	
Marsh Wren	4					1			5				17	
Golden-c Kinglet		15					7						2	
Ruby-cr Kinglet	2	28	3	1		23	8	11	37	11			2	
Mountain Bluebird	25	6	19			13			55	61	2	53	2	
Townsend Solitaire	1	1							2					
Veery		2			1				8				1	
Swainson's Thrush	20	1	2	7	4	1	1	2	9	1				
Hermit Thrush		2						3	10	3			3	
American Robin	245	85	130	57	630	99	17	23	302	178	8	31	61	10
Varied Thrush		5					2							
Gray Catbird	24	2	1	2	14				15	3			4	
Brown Thrasher	40		1	3	81	1			6					
Sprague's Pipit	5								14				10	
Bohemian Waxwing				16										
Cedar Waxwing	9			15		3		8	18					
Loggerhead Shrike	3				2									1
European Starling	381	8	149	290	1305	6	40		619	453	8	93	41	15
Solitary Vireo						2	1							
Warbling Vireo	3	6			42	6	3	1	43	2	2		9	
Philadelphia Vireo													1	
Red-eyed Vireo	2	1		vk	2				15	11		1	9	
Tennessee Warbler				2	1	3		2	16	6				
Orange-cr Warbler		3		2		7	2		7	3				
Nashville Warbler						1								
Yellow Warbler	136	41	46	21	364	18	5	2	216	54	1	17	108	9
Chestn-s Warbler				vk					1					
Magnolia Warbler						1								
Yellow-r Warbler	3	20	vk		4	35	16	10	24	13			3	
Townsend's Warbler		6				1	6							
Blackpoll Warbler	3				1	2			1					1
B & W Warbler				vk		1								1
American Redstart	2	4		vk		17							1	3
Ovenbird				1		10		2	8	4			11	
North Waterthrush	1	2				1	7	5	1					
Conn Warbler									7	1			2	
Mourning Warbler													1	
MacGill Warbler		10		vk					3					
Com Yellowthroat	19	3		2	39	22	9		7	4			4	
Wilson's Warbler	vk	7		2	3	1	5	1	8	11				2
Western Tanager	vk	2		1					11	1				1
Rose-b Grosbeak				1		2			11	3			14	
Lazuli Bunting	1		2		1	4								
Rufous-s Towhee	12			vk	76				1					
Am Tree Sparrow					3	4								4
Chipping Sparrow	76	12	8	2	31	51	18	21	59	22		3	2	
Clay-col Sparrow	64	2	3	9	53	6	3		188	37	1	42	34	8
Brewer's Sparrow	1				12									
Vesper Sparrow	68	11	22	102	25	1		2	84			10	16	3
Lark Sparrow	15				42									

MAY SPECIES COUNT - 1990

	LETH	WATE	CARD	CLAR	MHAT	CYPR	BANF	YAMN	CALG	REDD	MIRR	STET	EDMO	GRPR
Lark Bunting	23		wk		43									
Savannah Sparrow	60	1	17	58	91	9	2		204	34	1	25	103	74
Baird's Sparrow	4													
Grasshop Sparrow	2				4	9								
LeConte's Sparrow						1			9	3		4	12	
Fox Sparrow		1						1						
Song Sparrow	27		10		7	15	2	2	26	19		47	15	4
Lincoln's Sparrow				wk			3	2	21	8			15	
Swamp Sparrow													3	
W-throat Sparrow	1			wk	1	2			42	18			25	3
W-crown Sparrow	1	17	10	1	3	22	6		12	15				5
Harris' Sparrow					6									
Dark-eyed Junco		11				22	6	11	13	13		6	4	
Ches-col Longspur	51			5	5									
Bobolink													3	
Red-wing Blackbird	333	45	220	250	1025	43	16	23	895	215	6	295	524	
West Meadowlark	174		78	64	476	11			168	2		15	11	
Yellow-h Blackbird	649	4	141	4	238	30	4		610	61	4	55	157	
Rusty Blackbird	1			2	20									
Brewer's Blackbird	101	22	111	62	224	46			331	72		46	30	
Common Grackle	31		3	wk	145	7			6	13		1	12	
Brown-h Cowbird	174	56	12	54	160	13	20	16	130	31	1	6	318	
Northern Oriole	72		9	15	142	4			158	45	12	28	66	
Purple Finch									20	25			11	12
White-w Crossbill					4									
Pine Siskin	3	55	28		2	3	5	9	209	142				
American Goldfinch	63	11	33	44	56	20			44	103	1		11	
Evening Grosbeak	1			wk			1		1					2
House Sparrow	219		248	240	1318				221	217	4	93	2	1
Total Birds	10,644	877	3,189	3,436	11,878	1,242	425	278	16,491	6,612	210	2,314	14,479	3,854
Total Species	146	89	89	97	121	104	68	52	170	122	45	74	144	85
Observers	37	10	1	5	38	14	8	16	40	23	3	9	12+	2

Since the inception of the count in 1976, previous compilers have tried to explain the significance of annual changes in numbers of species reported. There are several factors which limit the suitability of data on individual species for statistical analysis on a provincial basis.

The most serious deficiency is the variability of data gathering. The number or size of individual count areas changes annually, as does the number and expertise of the observers who participate in all types of weather. Any comparative analysis should be carried at the route or location level where the same observer has been in consecutive years. Only a rigorously applied method of measurement such as that used by the Breeding Bird Survey (Alberta Naturalist 20(3):89-92) lends itself to annual comparison where such factors as habitat change can be analyzed.

It may be interesting instead to speculate on possible future additions to the species list. In theory, almost any of the approximately 375 species documented in Alberta could show up on the provincial count. In fifteen years observers have found 293 species in late May.

Potential additions from the Alberta list may be grouped by probability of appearance. Some "missing" species are known to breed in Alberta, but their preferred habitats have not been censused in any existing or previous count area. Some birds in this category could be Mountain Plover, Caspian Tern, Black Swift, Yellow-bellied Flycatcher, Sage Thrasher, and Clark's Grebe. Of the 21 species recorded in single years, four were located in either Fort McMurray or in One Four, areas which have not recently provided data (Table 2).

Some well-known wanderers which might stray into a count area are Great Egret, Snowy Egret, Cattle Egret, and Swallow-tailed Flycatcher. Some species which are undergoing range expansion such as Northern Cardinal and Anna's Hummingbird may eventually become more common summer residents.

For many species annually reported in Alberta, the timing of the provincial count sharply reduces the chance of being counted. Northern gulls move through much earlier in the year, while species such as Red-throated Loon have not been reported in spring, but are seen in autumn migration only.

Species may appear (or disappear) because of the "A.O.U. factor". Clark's Grebe, and a different "Western" Flycatcher are likely candidates. A Clark's Grebe - formerly the light phase of Western Grebe - was seen in late summer 1990 at Beaverhill Lake which is included in the Edmonton count area. Another Alberta species - "Western" Flycatcher - has been split recently into two species by the American Ornithological Union. Cordilleran Flycatcher has been considered to be the species found on the eastern slopes of the Rockies. However, sonagram recordings of the foothills populations around Calgary show generally the calls of the Pacific-slope Flycatcher (Dick Cannings - pers. comm.). Both species may be in Alberta but until a more reliable identification method than the current one based only on calls of the males is found, the Pacific-slope Flycatcher reported this year at Calgary will continue to be listed as a Western Flycatcher.

Unseasonal weather conditions such as strong winds during migration or a spring drought in the traditional breeding areas of some species could be the most important factor in the expansion of a future May count species list. Since 1985 for example, there is photographic evidence of first-time reports of several species in Alberta. These include Costa's Hummingbird, Blue-gray Gnatcatcher, Bendire's Thrasher, Kentucky Warbler, Lesser Black-backed Gulls, Great Black-backed Gull, Black Guillemot, Northern Cardinal, Northern Wheatear and Brambling. Tape recordings were made of Cassin's Sparrow and Carolina Wren.

The objectives of the provincial count as described in Alberta Naturalist 13 Suppl. 1:43-44 are to identify and count birds in order to: (1) note annual changes in numbers; (2) measure migrational progress for many species; (3) provide a format for education of participants in field identification, habits and habitats of local birds, and proper methods of taking field notes; and (4) encourage cooperative efforts toward an understanding of local natural history. It was noted that comparison would become more valid with similar coverage.

The educational aspect of the count has been the most successful of those lofty objectives. In those 15 years, many of the currently active Alberta birders have participated in various counts, improving their skills. A few have become observers in the Alberta Breeding Bird Atlas and the Breeding Bird Survey. Others have become active environmentalists, working as individuals or cooperatively to persuade the provincial government to preserve unique habitats and to educate the public about environmental issues.

Blackburnian Warbler

Table 2. Species reported on May Counts other than 1990.

White-faced Ibis
Snow Goose
Ross' Goose
Turkey Vulture
Sage Grouse *
Yellow Rail *
Virginia Rail
Black-necked Stilt
Hudsonian Godwit
Western Sandpiper
Dunlin
Short-billed Dowitcher
Red Phalarope *
Parasitic Jaeger *
Arctic Tern *
Black-billed Cuckoo
Snowy Owl
Northern Hawk Owl *

Northern Pygmy-Owl
Boreal Owl *
Lewis Woodpecker *
Red-headed Woodpecker *
Three-toed Woodpecker
Black-backed Woodpecker
Clark's Nutcracker
Brown Creeper
American Dipper
Western Bluebird
Gray-cheeked Thrush
Northern Mockingbird
American Pipit
Cape May Warbler
Black-th Blue Warbler *
Black-th Green Warbler
Blackburnian Warbler *
Palm Warbler

Bay-breasted Warbler
Yellow-breasted Chat
Black-headed Grosbeak
Indigo Bunting *
Sharp-tailed Sparrow
Golden-Crowned Sparrow *
Lapland Longspur
Snow Bunting
Rosy Finch
Cassin's Finch
House Finch *
Red Crossbill
Common Redpoll *

American Black Duck #
Gyrfalcon #
Ringed Turtle Dove #
Sage Sparrow #

Legend
* - reported in one year only
# - reported, but without documentation are not accepted

Mammals

Despite the emphasis placed on the search for birds and flowers during the May species count, some observers still found time to watch for mammals. Lists from six areas produced 24 species (Table 3).

Red Fox

Table 3. Mammals observed during the count weekend.

	LETH	CLAR	WATE	CALG	REDD	STET
Pronghorn	X					
Mule Deer	X	X	X	X		
White-tailed Deer	X	X		X	X	X
Moose					X	
Bighorn Sheep			X			
Coyote		X		X	X	
Red Fox					X	
Black Bear			X			
Striped Skunk	X	X	X			
Short-tailed Weasel	X					
Weasel (sp)		X				
American Badger		X				
Groundhog					X	
Richardson's Ground Squirrel	X	X		X	X	X
Columbian Ground Squirrel			X			
Franklin's Ground Squirrel					X	
Thirteen-lined Ground Squirrel	X					
Red Squirrel			X	X		
Least Chipmunk			X			
Porcupine	X					
Beaver	X			X	X	
Muskrat	X			X	X	X
"Cottontail"	X					
Snowshoe Hare					X	X
White-tailed Jackrabbit	X	X				X

LEGEND
LETH - Lethbridge
CLAR - Claresholm
WATE - Waterton
CALG - Calgary
REDD - Red Deer
STET - Stettler

Author's Address:
#5-2303 - 22 Street NW, Calgary, Alberta T2M 3W5.

Alberta Wildflower Survey: 1991

Elisabeth Beaubien

A big thank you to all F.A.N. members who have contributed flowering dates over the last 4 years. This phenology survey, which compares timing of flowering for 15 different wildflowers, will continue over the years ahead. The information has many uses including: mapping the "green wave" of spring, investigating climate warming through comparisons with Alberta flowering dates from past decades, and identifying the best wildflower watching times around the province.

For colour photographs, information on uses by Indian peoples, as well as tips on how to record flowering dates for the 15 plants, contact the address below for a free copy of "Alberta Wildflowers".

Gardeners - use the wild plants to give you "go-ahead" dates for spring planting! The flowering time of most spring perennials depends on how much warmth they've received, and this will also determine your garden's readiness. According to Dr. Charles Bird, a long-time F.A.N. member and phenologist, the best time to plant early vegetable seeds (eg: radishes, lettuce) is when the Early Blue Violets bloom. Later seeds (eg: beans) should wait until the Saskatoons flower. Ensure the success of your garden by planting as early as the season allows!

For more information, write: Wildflower Survey, Department of Botany, University of Alberta, Edmonton T6G 2E9, or call Elisabeth Beaubien at (403) 492-3484 (Botany Office), 438-1462 (home).

Cover Photo: Woodchuk **(Photo: Jim R. Salt)**

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(a) To encourage among all Albertans, by all means possible, an increase in their knowledge of natural history and understanding of ecological processes;
(b) To promote an increase in the exchange of information and views between natural history clubs and societies in Alberta;
(c) To foster and assist in the formation of additional natural history clubs and societies in Alberta;
(d) To promote the establishment of natural areas and nature reserves, to conserve and protect species, communities or other features of interest;
(e) To organize, or coordinate, symposia, conferences, field meetings, nature camps, research, and other activities whether of a similar or dissimilar nature;
(f) To provide the naturalists of Alberta with a forum in which questions relating to the conservation of the natural environment may be discussed so that united positions can be developed on them, and to provide the means of translating these positions into appropriate actions.

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Deadlines for F.A.N. project reports are:
Alberta Christmas Bird Counts, January 30, Andrew Slater, 152 Oakside Circle S.W., Calgary, AB T2V 4H2.
May Species Count for Birds and Mammals, July 15, Ross Dickson, 5-2303 - 22 St. N.W., Calgary, AB T2M 3W5.
May Species Count-Plants, July 15, J. Derek Johnson, Northern Forestry Centre, 5320 - 122 St., Edm., AB T6H 3S5.

Compiler cooperation is greatly appreciated.

President's Page

I would like to tell you about two conservation awards. The Order of the Bighorn Award, awarded by the Minister of Forestry Lands and Wildlife, and the Loran L. Goulden Award, awarded by the Federation of Alberta Naturalists.

The Alberta Order of the Bighorn was established in 1982 to recognize contributions of individuals, corporations, and groups to fish and wildlife conservation. In 1988 the Department added a "Special Minister's Award" recognizing an organization that has worked for fish and wildlife conservation over a long period of time. These awards are handed out at an annual award evening and banquet. This year's Special Minister's Award was given to F.A.N., its 20th anniversary. Last year's (1989) Special Minister's Award winner was the "Alberta Conservation Education Program", originally known as "Hunter Training", which had reached 25 years of dedicated work.

This year's Order of Bighorn Award recipients were:

1. Metro Hawaleshka of Two Hills who has set aside 320 acres of habitat.
2. Cardinal River Coals Ltd. which has promoted Bighorn Sheep habitat on their operation south of Hinton, Alberta.
3. Carol Kelly who operates the Medicine River Wildlife Rehabilitation Centre near Raven, Alberta.
4. The Special Areas Board of Hanna which has been instrumental in preserving habitat in that area.
5. Oswald Schalm of Brooks who has been active for many years as a volunteer with the Alberta Conservation Education Program.

We in F.A.N. were pleased to be chosen by Minister Fjordbotten for "the Special Minister's Award", and to be named among such other illustrious previous recipients. We were also pleased to note that besides F.A.N., most other winners were concerned with non-consumptive uses of wildlife.

F.A.N.'s own Loran L. Goulden Award was given this year to Cam Finlay. The Loran L. Goulden Award was named for a president of the Edmonton Natural History Club who was killed in a plane crash in 1974. The E.N.H.C. presented the memorial award province-wide before deciding in 1988 that F.A.N. would be a better vehicle. Cam remembers suggesting to his wife Joy, when they heard the news of Loran Goulden's death, that an award in his name be set up. Now, both Joy and Cam have received the award.

Cam has always been a great "idea person" for the environment. Things I remember him for are: setting up, with Joy, Alberta's first bluebird trails in 1971; being the driving force behind the John Janzen Nature Centre, and being its first director; spearheading efforts in the "Wildlife '87" project commemorating the centennial of wildlife conservation in Canada; being the first interpretive naturalist at Elk Island National Park; and being a F.A.N. founding director. He has promoted natural history throughout his life.

The Loran L. Goulden Award is administered by a three member F.A.N. committee, now consisting of Dave Ealey, Graeme Greenlee, and Lloyd Lohr. We acknowledge the previous efforts of John Powell, who was a long-time chairman with this committee, and its members, Margot Hervieux, Mary Lore, and Gwen McCauley (Goulden). Nominations for the award are requested near year's end. Watch for the announcement in the AN if you think of someone you would like to nominate.

Don Stiles, President

Wintering Brown Thrasher In Alberta

Alan Hingston

The primary factors associated with the winter distribution of the Brown Thrasher are temperature and vegetation. In the fall, birds in the north move south into regions where the average minimum January temperature is above -4°C. All of the areas of greater abundance are in regions that rarely get below freezing in January. The highest density of this species occurs in the swamp forest at the southern end of the Mississippi River (Root, 1988).

The above description is hardly typical of an average Alberta winter. However, Brown Thrashers have wintered in each of the last three years in Alberta, and successfully in two instances.

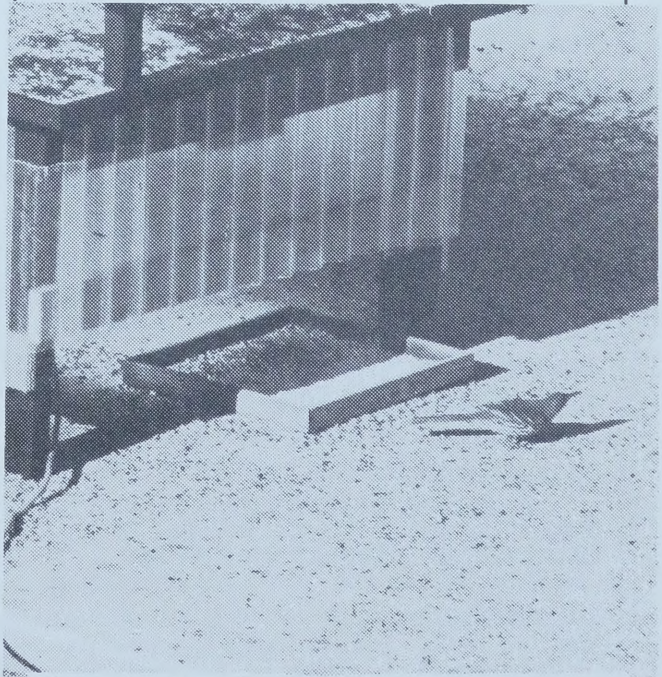
The first record of a Brown Thrasher is one that appeared at Tom Webb's feeder near Turner Valley about December 9, 1988. The bird spent the entire season at his feeder round to April or May of 1989. While it did eat ground sunflower seeds and the occasional berry, it survived the entire winter on pie pastry (Pearman, 1989).

There is deep spruce on the property in which the thrasher took cover. The bird also took advantage of an artificial heat source which Tom provided by rigging up a brooder lamp. The thrasher was the only bird, of all those visiting the feeder, that lay under the lamp, for up to 20 minutes at a time. The bird came to the feeder regularly four times each day and was quite aggressive to other birds, including jays.

The next winter a Brown Thrasher appeared at the feeder of Eileen Watt in Old Beverley on the east side of Edmonton near Rundle Park. This thrasher was also successful in overwintering, arriving on December 18, 1989 and being last seen on April 24, 1990. The bird arrived the day after the Edmonton CBC so was recorded during count week if not on the day. Identification was confirmed by Gerry Lunn on New Year's Day.

This bird did not come to a feeder as such, although it did take blueberries and possibly some raisins in an adjoining garden. For the most part, it seemed to feed on crab apples and perhaps nearby mountain ash berries, and from scratching around under hedges in more characteristic thrasher style. The whereabouts of the thrasher when not on the Watt property is unknown, although there are large mature trees in the neighbourhood. The thrasher was described as not very sociable towards other birds.

This winter a Brown Thrasher was reported on the Wabamun Lake Christmas Bird Count, a first record for Alberta (Andrew Slater, pers comm). The bird arrived at the McEwen feeder, located about 10 km north of Wabamun Village, during the first week of November and



Overwintering Brown Thrasher, Turner Valley 1988/89 (Photo: Tom Webb) survived until the New Year. The bird was seen on count day (December 16, 1990) at the feeder by Peter Demulder, and Pat & Dick Clayton. Mrs. Luellen McEwen fed the thrasher on alfalfa cubes shredded in a coffee blender, and horse oats. The bird visited the feeder regularly three times each day; otherwise it sheltered in a brushpile or in the horse barn. Unfortunately, this individual was not able to overwinter as it is believed the bird perished about January 3, 1991, following a sustained cold period of -20°C weather which began December 18, 1990.

The Brown Thrasher is typically a breeding bird of the prairies and parkland of south and east Alberta, wherever there is thick undergrowth or dense brush. Salt and Salt (1976) indicate the breeding range has extended this century, north to Cold Lake and Edmonton and west beyond Calgary to the edge of the foothills. The Brown Thrasher was unknown at Hardisty before 1925 and at Edmonton before about 1950.

The occurrence of Brown Thrasher in Alberta in each of the last three winters is unusual. That they should survive for long periods, and in two cases successfully overwinter, is surprising under winter conditions so different to their normal winter range. The survival of these birds is no doubt entirely dependent on the availability of food and shelter at the properties detailed in this article. That these individual birds should remain when the rest of their species have migrated south is something of a mystery.

Acknowledgements

I am grateful to the feeder watchers and observers mentioned above for providing the information upon which this article is based.

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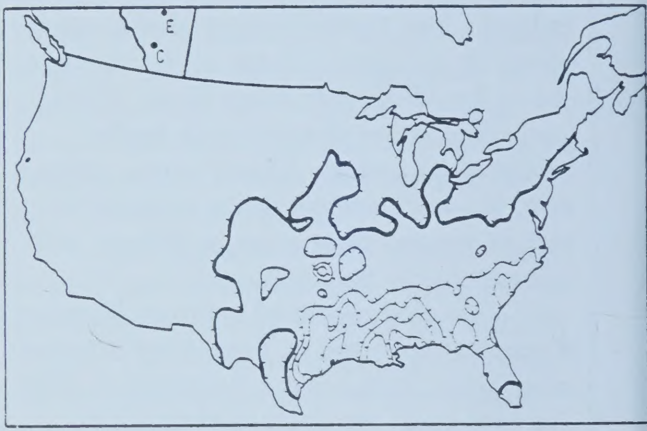

The map indicates the winter range of the Brown Thrasher extending from the Carolinas to include the Gulf states as far east as Texas. The bold line indicates the edge of the species distribution. The contour intervals are 20, 40, 60 and 80% of the maximum abundance, and the tick marks point towards the lower abundance (Root, 1988).

Author's Address:
53 Wakefield Blvd., St. Albert, Alberta T8N 3G1.

In Search of Eagles

John McFaul

I am sure that most birdwatchers in Alberta readily agree that Calgary is the best winter birdwatching locality in our province. Despite the best efforts of other Christmas Bird Counts in Alberta, Calgary always records the most species on the CBC. Although the world class stature of Calgary's birdwatchers does contribute to this success, undoubtedly the open water found in Calgary during the winter plays a very important role.

The Bow River downstream of the Donny Brook Sewage Treatment Plant stays open for most of its length through Calgary. Other important open water areas include the Inglewood Bird Sanctuary, the Dover Pond (at 17 Ave. and 68 St. E.), and the Cominco Plant. These open water areas attract the large number of waterfowl which over winter in Calgary. For example over the past 6 CBCs an average of 15 species of waterfowl have been recorded. Of these, the Mallard has been the most numerous with an average of 16,000 or so individuals being counted on the last 6 CBCs. Some estimate the actual number to be up to 3 times this figure.

These numbers of birds represent a large food source for any predator capable of taking advantage of them. The Calgary ducks often attract a number of Bald Eagles who spend the winter dining on *la cuisine canard*. Up to 17 eagles have been sighted along the river this season in Calgary. Four or more Gyrfalcons also appear to be attracted to the ducks.

The presence of these Bald Eagles provided a focal point for the F.A.N. field trip held in conjunction with the AGM on January 27, 1991. So at 9 a.m. an esteem group of birdwatchers, many I must confess not from Calgary including some from that place up north, left the hotel in a light snowstorm to search for eagles. As leader, it was my duty to use all my experience to bring success to our venture.

On our way out to the Bow River I decided to take a quick detour to visit a bus turn-around point near an LRT station. This diversion was greatly appreciated by the out-of-town birders. I suspect that they did not realize that such modern transportation systems exist. However we could not dally there as we had to get back on track to accomplish our major goal.

Arriving at Carburn Park without further incident we started our search. Carburn Park and its neighbour, Beaverdam Flats, are natural areas located on the east side of the Bow River south and north of where Glenmore Trail crossed the river. These parks have a typical riverine forest of balsam poplar which are used as perches for the eagles to survey the ducks found along the river.

Soon, however, excitement rippled through our group as a dark form was noticed off in the distance flying toward us. Quickly binoculars snapped to attention. Just as quickly the raven veered off no doubt laughing at the diversion it had caused. It was with some disappointment that we headed back to the parking lot without seeing an eagle. Perhaps Beaverdam Flats was the place to go.

Standing atop the cliff overlooking Beaverdam Flats our luck soon came back. An immature Bald Eagle was spotted on our side of the river perched high in a balsam poplar tree. With further searching our spotting scopes revealed two mature Bald Eagles over the river. We decided to walk down to the river to get a closer view.

At the river edge we were once again looking at hundreds of Mallards lined up on the opposite bank. A couple of Lesser

Scaup were quickly spotted. We also saw a pair of Buffleheads splashing in the shallows. Above the action another immature Bald Eagle watched from its perch. The cold started to seep through our clothes and despite the pleadings of some chickadees we happily headed back to our cars. Mission accomplished.

Author's Address:
43 Hartford Road, N.W., Calgary, Alberta T2K 2A4.

Fall Emergence of *Plebejus rusticus*

Norbert Kondla[1] and Chris Schmidt[2]

The purpose of this note is to report the unusual occurrence of partial second broods of the butterfly *Plebejus rusticus* in Alberta. This phenomenon has not been previously reported.

A summary of nomenclature is necessary so that interested readers can locate illustrations of this butterfly. English names that have been used for this species in recent popular works are: Arctic Blue, High Mountain Blue, and Primrose Blue. Zoological nomenclature is very confused. In recent years this species has been placed either in the genus *Agriades* or *Plebejus* by various authors. At the species level, the following names have been applied: *aguilo, glandon, franklinii, and rusticus.*

On 2 September 1979 Kondla collected one fresh specimen in the Wintering Hills. He (Blue Jay 39:4-12,1981) speculated that this might indicate a small second brood. One specimen can be discounted as an aberrant late emergence but in 1990 Schmidt collected sufficient specimens to verify that prairie-dwelling populations of the *Plebejus rusticus* complex do, on occasion, have second broods that emerge in early September. The main emergence of adults on the Alberta prairies occurs in June.

On 6 September 1990 Schmidt collected 5 males and 1 female. On 10 September he collected 2 more males. All specimens were judged to be recently emerged due to absence of flight wear in the majority of specimens. The study area was located in a coulee adjacent to the town of Didsbury. The butterflies were found on a dry, grassy, south-facing coulee slope; mostly at the top of the slope.

It is unlikely (for climatic reasons) that second broods will be documented in mountain or northern populations of the *Plebejus rusticus* complex. Further work may show it to be a frequent, but not annual, event in prairie populations. The scarcity of records could simply be a reflection of the fact that lepidopterists seldom visit prairie grasslands during September.

Authors' Addresses:
[1] 6415 - 95 Avenue, Edmonton, Alberta T6B 1A6 and
[2] Box 11, Didsbury, Alberta T0M 0W0.

A Second Location for Mist Maiden *(Romanzoffia sitchensis)* in Jasper National Park

George W. Scotter

In Packer's revision of Moss (1983) there is only a single record (Map 901) of Mist Maiden *(Romanzoffia sitchensis)* in Jasper National Park. That specimen was collected by Peter Kuchar on August 16, 1968. The collection was made on damp rock shelves, at an elevation of 1980 m, along a tributary to Evelyn Creek to the west of the Bald Hills (Accession No. 49185, ALTA). Mist Maiden was not recorded in Jasper National Park during the biophysical inventory (Achuff 1982).

For the past two summers I have taught a class on alpine wildflowers for the Jasper Institute of the Canadian Rockies. On two occasions (July 30, 1989 and August 12, 1990) several class members and I have found Mist Maiden in full bloom above the Mount Edith Cavell meadows (52° 40' 30" N, 118°, 2440 m elev.).

Several dozen Mist Maiden plants were present along a 50 m long streamlet which was watered by the melting of a large snowfield. The habitat was quite different from where I have seen it in Banff, Waterton and Yoho national parks. The habitat in those areas was always the crevices of wet rocks and cliffs.

This delicate perennial herb had white to cream coloured flowers with a yellow throat. The five petals were funnel-like at the base, with broad rounded lobes forming about mid-length. The kidney-shaped leaves were mainly basal with long, slender petioles and 5 to 9 lobes which were scalloped. The stamens were uneven in length and the strap-like sepals were purplish-green.

Mist Maiden superficially resembles some saxifrages in general appearance, especially Alpine Brook Saxifrage *(Saxifraga hyperborea),* which also has a similar ecological preference. However, the petals of Mist Maiden are fused at the base while those of Alpine Brook Saxifrage are separate from one another. The stalk below the flower of Mist Maiden also lacks glandular hairs.

This strikingly beautiful plant was named after Count Romanzoff, a notable Russian patron of botany, who sponsored Eschscholtz's expedition to California.

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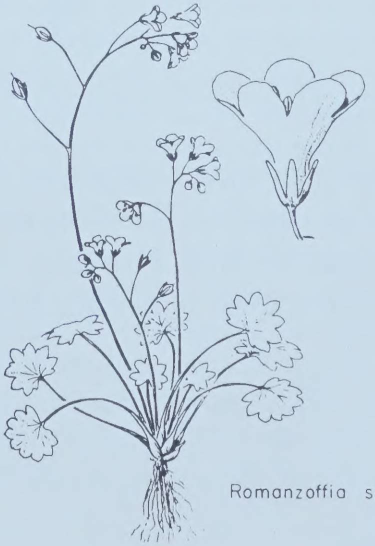
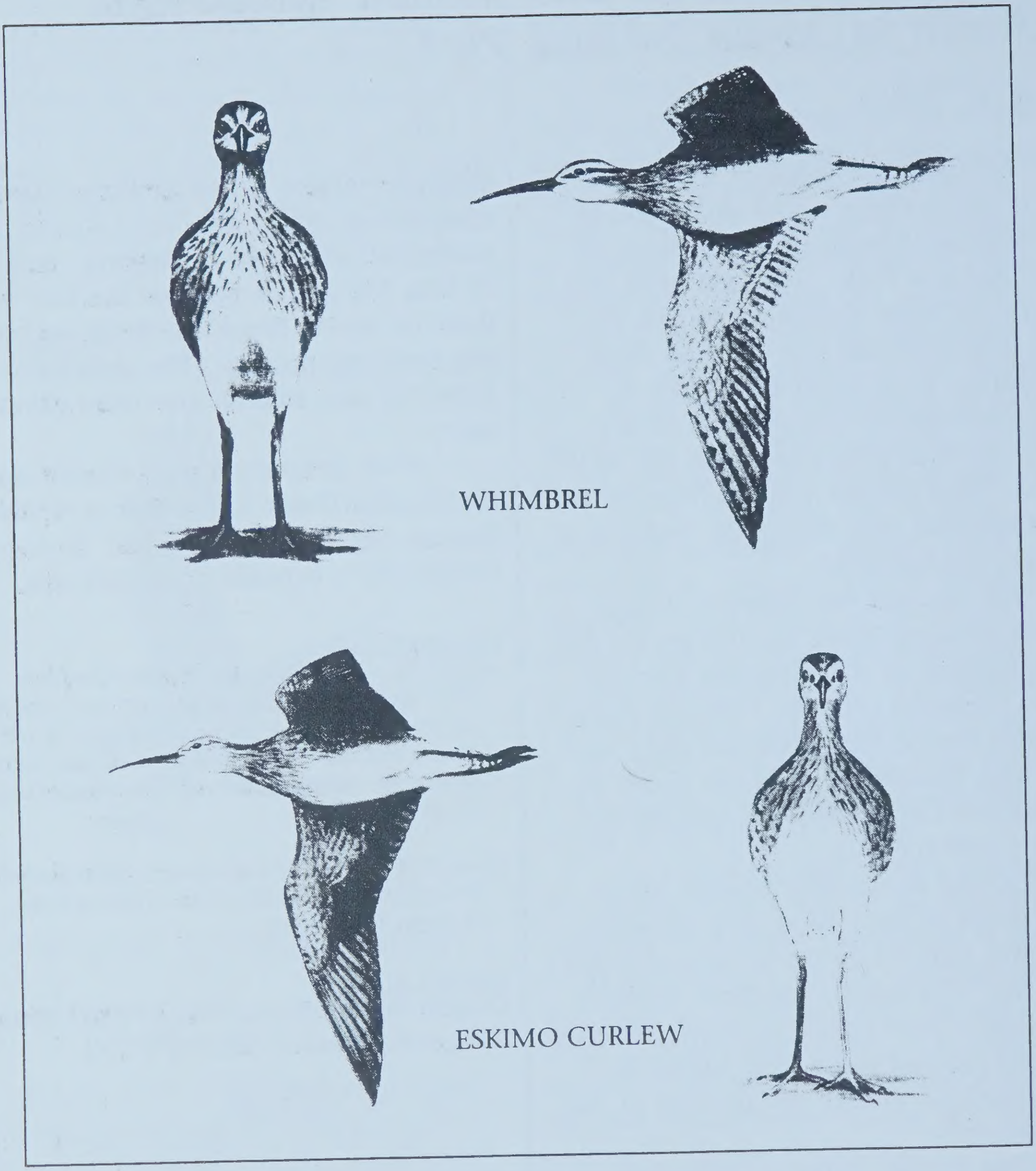
Author's Address:
Canadian Wildlife Service, Rm. 210, 2nd Floor, 4999 - 98 Avenue, Edmonton, Alberta T6B 2X3



Romanzoffia sitchensis



Have you seen an Eskimo Curlew? If you think you have, please contact the F.A.N. office 453-8629, and ask for the reporting form put out by U.S. Fish and Wildlife Service, 203 West Second Street, Grand Island, Nebraska 68803 U.S.A.

Announcements

Notice of Publication

Rare Vascular Plants in Canada - Our Natural Heritage, by George W. Argus and Kathleen M. Pryer. Canadian Museum of Nature, Ottawa. 191 pp + maps. (1990). This publication on the status of rare vascular plants in Canada is the culmination of 17 years of research supported and encouraged by the Rare and Endangered Plants Project of the Canadian Museum of Nature. It is based largely on previously published rare plants lists, but additions and deletions have been made. This annotated list treats 1010 rare Canadian species, comprising 25-30% of the Canadian flora. Documentation for treating each species as rare in Canada is given. In addition, each species is placed into an international context by its Nature Conservancy rank, given at global, national, and subnational levels, and its Canadian conservation priority. A range map for each species, plotted at the province, territory, and state level, indicates its general North American range. As well as the main annotated list there are sublists arranged by family, province and territory, and priority class, and a list of rare Canadian endemics.

This publication is available, in English or in French from: The Museum Boutique, Canadian Museum of Nature, P.O. Box 3443, Station 'D', Ottawa, Ontario, Canada, K1P 6P4. Price in Canada: $16.96 (Can.) Incl. postage, handling and G.S.T.

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Better Birds and Gardens

Now is the time to start thinking about turning your garden into a haven for birds. You can receive a free copy of an article from Living Bird magazine that tells you how to get started. Living Bird is the quarterly publication of the Cornell Laboratory of Ornithology, a membership organization, for the study appreciation and conservation of birds, located on a 200-acre wildlife sanctuary in Ithaca, New York.

The Lab recently remodeled its bird feeding area to create a state-of-the-art garden that exemplifies the techniques you can use to attract birds to your own property.

For a self-addressed, stamped envelope you can learn more about landscaping for birds, including suggestions of plants, birds they will attract, and sources for detailed plant lists and gardening idea. Write to: Cornell Laboratory of Ornithology, EIS Dept. N1, 159 Sapsucker Woods Road, Ithaca, NY 14850.

* * * * * * *

Sustainable Use of Canada's Forests: Are We on the Right Path?

The proceedings from the 1990 annual meeting of the Canadian Society of Environmental Biologists are now available. The 158-page proceedings features 18 papers plus a panel discussion by speakers from industry, government, private consulting, and environmental non-government organizations from across Canada. Topics include sustainable forest development; conflict resolution; managing mixed wood forests; old-growth forests; forest habitat issues; and tourism. All papers are in English. Copies of the proceedings can be obtained by sending a cheque or money order for $15.00, payable to the Canadian Society of Environmental Biologists, to Forestry Proceedings, c/o CSEB. Alberta Chapter, P.O. Box 9567, South Edmonton Post Office, Edmonton, Alberta T6E 5X2.

* * * * * * *

Alberta Birds, 1971 - 1980 (Volume 1, Non-passerines) is now available. This 240-page book, the first of a two volume set, was written by Harold Pinel, Wayne Smith and Cleve Wershler, and is published by the Provincial Museum of Alberta. This work is a summary and analysis of non-passerine bird records in Alberta during 1971 to 1980. It updates the previously existing works on Alberta's avifauna. Included in this book is information regarding seasonal status, migration patterns, breeding biology and interesting highlights.

To obtain a copy, send a cheque or money order payable to The Calgary Field Naturalists' Society, c/o 1017 - 19 Avenue, NW., Calgary, Alberta T2M 0Z8. The total price of this book is $15.50 (Can.), which includes shipping, handling and G.S.T.

* * * * * * *

HAIL!

Alberta Bird Atlas Project

The Management Committee has hired Glen Semenchuk as Editor/Writer for the next stage of the Alberta Bird Atlas Project. Glen comes to the Project with a thorough knowledge of its working, a sound business and environmental consulting background and experience with the publishing industry. He can be reached either through the Provincial Museum (453-9188) or F.A.N. Office (453-8629).

FAREWELL!

Congratulations Albert

It was with mixed emotions that the ABAP Management Committee accepted the resignation of Albert Brule, effective April 30, 1991.

Albert leaves the atlas project to move on to a new position of Fundraiser with the Royal Alexandra Hospital in Edmonton. He has set up a good system and we shall miss his cheerful presence.

We wish Albert all the best!

Friends of the Athabasca Environmental Association

Announcing a Conference on The Boreal Forest

What is it, how should it be managed, will it survive?

When:	October 4, 5, 6, 1991, Friday, Saturday, Sunday
Where:	Athabasca, Alberta
Who:	The general public, foresters, politicians
Why:	To share knowledge, gain insight, influence policy
Fee:	$50 for 3 days, $30/day for Saturday or Sunday (half-price for students, seniors)

Speakers: J. Stan Rowe, Herb Hammond, David Schindler and Susanne Bailey. Other speakers will come from government, the University of Alberta, Athabasca University, the forest industry, the native community, local small-scale forest users, and the community-based forestry in other parts of Canada.

To Register please contact: Boreal Forest Conference, Friends of the Athabasca, Box 1351, Athabasca Alberta T0G 0B0, Tel. 403-675-4408, 2993, 2601, 3349.

Is a Hard Rain Gonna Fall?

Jill Congram, Tracy Boulter, Stephanie Pettem and the rest of Grade Six AIM.

This has been a local school program for gifted students for six years in Medicine Hat. It is called AIM, which stands for Achievement In Motion. Presently there are thirty-nine students from ten different schools who come for full-day sessions once a week.

The information for the "Aim Acid Rain Project" was found in a Department of Education pamphlet. Mr. Terry Freeman, the AIM teacher, wrote to Public Focus for more information. The three AIM classes, grade four, five, and six, viewed the information, and discussed our participation in the project. We decided it was a useful, hands-on experiment. Then we started the experiment, not knowing that it would change our lives and views on the environment.

For the next six weeks (October 1st - the middle of November) we observed the weather patterns, wind direction and measured the precipitation. Precipitation fell on 9 of the 30 days. The pH levels were 6.5 for three days, 7.0 for one day, 6.0 for three days, and 5.5 for two days. The wind came from the Southwest most of the time. It also drizzled or snowed most of the time. 7.0 on the pH scale is considered neutral, and 5 - 5.6 is Acid. Our specimens level was Neutral to Basic.

The Medicine Hat News featured our project and its progress in two articles and we spoke twice on the show "CBC Wildrose Country."

We sent our information to Public Focus and we are expecting the international results (USA/CANADA) anytime now. We have received two Newsletters with Acid Rain facts and activities from Public Focus.

For the follow-up activity we decided on protecting acres from the Amazon Rain Forest, and we have helped 4 acres with money we have received by doing extra chores around the house. Finally, we have decided to continue this project next year.

If you wish to get more information about this project please write: Public Focus, 483 College Street, Suite 500, Toronto, Ontario M6G 1A5.

School Project "Medicine Hat News" (Photo: Frank Webber)

Close Proximity of Canvasback and American Coot Nests

James M. Sutherland

Interspecific nesting associations among birds occur for several reasons. Species may nest close together simply because they have the same nesting habitat requirements or sometimes other factors are involved. Red-breasted Geese *(Branta ruficollis)* frequently nest close to Peregrine Falcons *(Falco peregrinus)* and this association may have evolved to avoid fox predation, since foxes avoid areas used by nesting peregines (Krechmar and Leonovich 1967). Ducks sometimes nest in larid colonies and this may be the result of ducklings imprinting on larid nesting areas or of the adults benefitting from the larids' alarm calls (Vermeer 1968). Red-tailed Hawks *(Buteo jamaicensis*) and Great Horned Owls *(Bubo virginianus*) will also nest close together (Houston 1975). This note documents nesting associations of Canvasbacks *(Aythya valisineria)* and American Coots *(Fulica americana)* using data collected during a study of coot reproductive ecology completed in 1981-82 near Meacham, Saskatchewan (52°10'N, 105°50'W).

All four Canvasback nests were found in 1982 and they were on 3 of 24 coot nesting ponds of the study. Three of these nests were very close to coot nests (Table 1). The maximum distance of 8 m between the coot nests and these three Canvasback nests is less than the minimum of 17 m between coot nests (N=63) during the study. Canvasback nests were found independently of coot nests during searches conducted by wading. Relative nest initiation dates were known for only one of the Canvasback-coot pairs. Canvasback nest C-2 (Table 1) was initiated before the adjacent coot nest. All adjacent Canvasback-coot nests were active at the same time. Of the Canvasback nests, C-2 hatched and other three were deserted. The coot nests adjacent to Canvasback nests C-1 and C-3 hatched while the other two coot nests were deserted. Canvasback nests C-2, C-3, and C-4 were parasitized by Redhead *(Aythya americana).*

Waterfowl-coot nesting associations have nested within a metre of Redhead nests without causing a single nest failure but relative nest initiation dates were not given (Low 1940). A Ruddy Duck *(Oxyura jamaicensis*) nest was successful when it was very close to a coot nest, but this was before the coot nest hatched (Gullion 1953). Vaa et al. (1974) found instances of Ruddy Ducks and Canvasbacks nesting within 14 m of coots.

Ducks may nest close to coots to avoid nest parasitism. If a hen nests close to a coot nest, the coot pair could become accustomed to the hen's presence in the territory. This is facilitated by the coots' lower territorial defense early in the nesting cycle (Gullion 1953). A strange Redhead or Ruddy Duck later entering the territory to lay parasitically would be driven away by the coots. This is not supported by the present study since 2 of 3 Canvasback nests close to coot nests were parasitized by Redhead. However, my study was completed during a drought and Canvasback nest densities were very low. This may have increased the probability of parasitism of each Canvasback nest regardless of their proximity to coot nests.

Lokemoen (1966) found that 13 of 33 (39.4%) duck nests in emergent vegetation were parasitized by Redheads, while none of several hundred coot nests contained Redhead eggs. Similarly, Joyner (1973)

Table 1. Proximity of Canvasback nests to coot nests.

Canvasback nest number	Canvasback-coot nest spacing(m)	Nearest coot conspecific nest distance(m)[a]	Mean coot nest spacing on pond(m) (± 1 S.D.[b])
C-1	4	54	47 ± 12
C-2	6	73	59 ± 24
C-3	8	34	59 ± 24
C-4	41	62	71 ± 34

[a] Distance from coot nest in column 2 to nearest coot nest.

[b] Standard deviation.

found that 84 of 305 (27.5%) duck nests and only 1 of 142 (0.7%) coot nest were parasitized by Redheads or Ruddy Ducks. Only about 10% of the duck nests parasitized were of species usually nesting over water, however. These studies show that parasitism on coot nests is less than expected given their abundance and the habitat in which they are found. This may be because a coot pair will drive ducks from their territory during late incubation (Ryder 1959). Different nesting preferences, small egg size, and different egg color are other possible reasons for low parasitism on coot nests (Lokemoen 1966). Redheads locate nests to be parasitized by observing the activities of the host (Sugden 1978; Weller 1959). This makes coots and waterfowl nesting in emergent vegetation the most vulnerable to parasitism as this is where Redheads concentrate their activities.

The tendency of coots to attack territorial intruders may result in Canvasbacks nesting close to coots for protection from predators. Less emergent vegetation was available to marsh nesting birds during this study because of the drought. Thus the close proximity of Canvasback and coot nests I observed may be the result of the Canvasback hens depending on coot pugnacity rather than concealment for predator avoidance. However, since 51 of the 111 coot nests were predated by crows or magpies, nesting close to coots under the conditions of my study would afford little protection from these predators.

I thank W. J. Maher and J. B. Gollop for helpful comments on an earlier version of this note.

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Author's Address:
Department of Biology, Univerity of Saskatchewan,
Saskatoon, Saskatchewan S7N 0W0.

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The loss of tropical forests is a serious part of the growing environmental crisis indicated by the greenhouse effect and global warming. To find out how you can take action now, write Global ReLeaf, Friends of the Earth, 251 Laurier Avenue West, Dept. TRF, Ottawa, ON K1P 5J6.

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Alberta Christmas Bird Counts 1990

Andrew C. Slater

A Brown Thrasher survived until Christmas this year at a feeder near Wabamun Lake, eating shredded alfalfa cubes and horse oats. When not at the feeder, the bird stayed in a brush pile or the horse barn. After being recorded on count day, the thrasher perished about January 3rd in the midst of a long cold spell.

In Calgary, a Swamp Sparrow inhabited a small patch of red osier dogwood and shrubbery on the banks of the Bow River, with a feeder nearby, right through the cold spell and was still there in late January.

After some persuasion over the years from the Provincial Compiler, a count was obligingly carried out this year in Sage Grouse country and three individuals were found. There was no sign however of the groups which, according to local ranchers, are the typical winter social structure of this species.

These three additions to the provincial CBC species list were the highlights of another very successful effort, reports being received from 49 counts, the highest number yet. Those counts which were held at the very beginning of the period avoided the bitterly cold weather that made things miserable for those who counted later, and which reduced the number of both birds and participants on some counts.

In all, the numbers of birds found were encouragingly high, no fewer than 24 species having all-time provincial highest totals. These were Western Grebe, Oldsquaw, Cooper's Hawk, Northern Goshawk, Golden Eagle, Gyrfalcon, Prairie Falcon, Sharp-tailed Grouse, Wild Turkey, Ring-billed Gull, Snowy Owl, Northern Hawk-Owl, Downy Woodpecker, Northern Flicker, Horned Lark, American Dipper, Common Raven, Varied Thrush, Bohemian Waxwing, Song Sparrow, White-crowned Sparrow, Dark-eyed Junco, Lapland Longspur and Red Crossbill.

Most notable among these were the following, which were seen in numbers not previously approached: Gyrfalcon (10 versus a previous highest total of 3), N. Hawk-Owl (12 v. 5), Horned Lark (4597 v. 2345), Dark-eyed Junco (410 v. 207), Lapland Longspur (207 v. 60) and Red Crossbill (388 v. 72).

Common Goldeneyes recovered from last year's dip, while Ring-necked Pheasants were seen on more counts than ever before and were at their highest total since 1978. Saw-whet Owls were very widespread, being found on 9 counts whereas previously they had not been found on more than 4. Brown Creepers were found on the most counts ever, and so were Pine Grosbeaks, which were extremely well distributed for the second successive year.

Hairy Woodpeckers were in good numbers again, particularly on counts in the north of the province, where they tended to out-number Downies. Golden-crowned Kinglets and White-winged Crossbills both recovered somewhat from last year's lows, but their numbers were not up to those of the previous two years. On the other hand, Red-breasted Nuthatches have recovered from two low years to average numbers.

As usual, a few species were in lower numbers or absent, but mainly due to population fluctuations or weather factors, rather than permanent declines. Two species missed completely this year were Northern Pygmy Owl (a notably irruptive species that has been recorded in 13 years out of 17 since compilations started) and Ring-necked Duck (11 years out of 17).

Canada Goose numbers declined for the third year in succession, though Mallards held steady. Rough-legged Hawks were at less than half of last year's number, but very close to the 1988 level, while Ruffed Grouse have finally come off the cyclic peak which has been evident since 1985. Killdeer, too, were at their lowest since 1985 and Short-eared Owls their lowest since 1987.

The counts that achieved the largest increase in the number of species were:

	Species in 1988	Previous 5 year average	Percentage improvement
1. Waterton Lakes	34	24.4	39.3
2. Claresholm	25	20.6	21.4
3. Lethbridge	41	34.0	20.6

Waterton Lakes, after two low years (last year due to high winds) came close to fulfilling its potential, with six species of waterfowl, three grouse (Spruce, Ruffed and Sharp-tailed) and a Varied Thrush. Their 5 Ring-billed Gulls were the second occurrence of this species on an Alberta CBC (Edmonton had one in 1987, with 3 Californias). Holding the count at the beginning of the period probably helped the species total here, as at any location with open water.

Claresholm, on the other hand, held their count on Boxing Day and maintained a successful run by finding 25 species, the same as in 1988 when they placed third and one more than 1987 when they were second. A placing again next year would be a real achievement, now that their totals are so consistent! Claresholm's 11 Golden Eagles and 2500 Horned Larks were both new provincial highest-ever counts, while Blue Jays appeared on this count in numbers for the first time.

Lethbridge held their count even later, on December 29 and were 10 species below last year's highest ever, which put them in first place, but still well above their long-term average. Their 200 Lapland Longspurs is easily a new provincial high and a Varied Thrush and a White-throated Sparrow were first records. The most unexpected bird, however, was a Eurasian Greenfinch which visited a feeder in Coaldale. This exotic was well described, but considered a probable escapee and omitted from the count. It certainly caused a stir, though!

Readers will have noticed that the three most improved counts this year were all in the south of the province, the first time that they have been so close together. This is very indicative of the effort and enthusiasm that have been evident in the Lethbridge area in recent years, and is a considerable compliment to the participants, compilers and co-ordinator involved.

Banff/Canmore was another count that recorded their first Varied Thrush and also a Great Grey Owl. The prospect of minus forty temperatures at Bow Summit cooled enthusiasm for that count, and so there are no White-tailed Ptarmigan this year. In fact, there are no Ptarmigan at all, as Fort Smith did not report and none of the counts in the North found any Willows. The new count at Beaverlodge set a new provincial high of 5 Hawk-Owls, however. At another new count, at Bindloss, counters were surprised to find a Pileated Woodpecker so far out on the prairies.

Calgary has been hoping to find 70 species for several years and this year succeeded, the first time that this figure has been achieved anywhere in the Prairie Provinces. Their 4 Gyrfalcons were a new provincial high and were all seen together on the city's eastern outskirts. Their Wood Duck was only the second report on an Alberta CBC; Edmonton recorded 4 in 1976. The number of feeder-watchers continues to grow in Calgary and helps to account for the 43 Flickers, another new provincial high.

The 22 Wild Turkeys in the Cypress Hills was also a new provincial high and indicates that the introduced population there is thriving. Edmonton again recruited a huge number of feeder watchers (877) and came up with some big figures. Their 113 Dark-eyed Juncos is a new provincial high.

It was pleasing to receive a report from Fort McMurray again; their highlight was a new provincial high of 200 Red Crossbills. Fort Saskatchewan counters were surprised to find 243 Common Goldeneyes on open water in the North Saskatchewan River near Pointe Aux Pins. Horseshoe Canyon countters continued their habit of finding unexpected foothills birds out on the prairie. This year they were Sharp-shinned Hawk, Ruffed Grouse, Boreal Chickadee, Brown Creeper, Townsend's Solitaire and Red Crossbill.

The Swainson's Hawk at Medicine Hat was only the second ever recorded on an Alberta CBC (Wembley reported one in 1976). It was carefully observed for ten minutes as it perched in a tree, and was well described. Two other Buteos were seen nearby, but could not be identified. The Snake's Head found three new species.: Green-winged Teal, White-throated Sparrow and the Pine Siskin.

The two Oldsquaws at Wabamun Lake were the first observation on an Alberta CBC of more than one, but numbers of Mallard and Goldeneye recorded were down because of thick fog. An interesting report from Wembley was of two Peregrine Falcons seen a week before the count, one of which chased and caught a Sharp-tailed

Grouse. The falcon left its kill on the edge of a road and would not leave the area, remaining sitting on a fence post and power pole 40 meters away.

In conclusion, I would like to thank all count compilers for their co-operation and promptness and also Teresa Dolman who co-ordinated the Lethbridge area counts, Myrna Pearman who did the same for the Red Deer area, and Doreen Higgin who kindly typed this manuscript.

* * * * * * *

Count Dates, Compilers and Participants

Alix: Dec. 30. Observer: Loma Smith.

Banff/Canmore: Dec. 15. Compiler: Mike McIvor, Box 114, Banff, AB T0L 0C0. Participants: Marie Boisvert, Heather Dempsey, Morag Dornian, Dave Elphinstone, Halle Flygare, Jean Greig, Debra Hornsby, Mona Keith, Doug Leighton, Miriam Leighton, Diane McIvor, Mike McIvor, Harold Mortimer, Randy Nichols, Brian Patton, Aileen Pelzer, Bob Smith, Gareth Thomson Keith Webb, Fraser Whitbread, Jon Whyte, Gerry Wilkie(Bow Valley Naturalists).

Beaverlodge: Dec. 23. Compiler: Joan E. Kerr, Box 516, Beaverlodge, AB T0H 0C0. Participants: Jim Brown, Maxine Brown, Marie Cliffe, Lewis Jones, Joan Kerr, Bev McLauchlan, Joanne Smith.

Bindloss: Jan. 12. Compiler: Michael D. O'Shea, General Delivery, Bindloss, AB T0J 0H0. Participants: Cresten Andersen, Wonnita Andrus, Derek Barnes, Barbara Fowlie, Berry Lou Fowlie, Denise Fowlie, Rob Gardner (Med. Hat), Aldon Minor, Donna Minor, Marie O'Shea, Michael O'Shea, Jan Sawatsky, Kristie Stelter.

Bentley: Dec. 30. Compilers: Jessie and Percy Palmer. Observers: Bill Hoisman, Ruth McPhee, Ken Olson, Sharon Murphy, Lois and Gordon Galbraith, M. Morrison, K. Freeman, Muriel and Herb Harriman, Weese and Catrena Wilford, Beatrice Burles, Leonard Stoness, Jim Dunn, Gary and Terri Nelson, Allan, Midge, Michelle, Shane, Janis, Brent and Rachel Stolte, Vivian Busat, Ernie and Linda Smith.

Blackfalds: Dec. 30. Observers: Nadine, Tiffany and Quinn Kuiken.

Brule: Dec. 26. Compiler: Carly Deschuymer, General Delivery, Brule, AB T0E 0C0. Participants: Pearl Kennedy, Julien Deschuymer, Carly Deschuymer.

Calgary: Dec. 16. Compiler: Ian Halladay, 2103 Crocus Rd., N.W., Calgary, AB T2L 0Z7. Participants: Ingrid Alexander, Desmond Allen, Peter Allen, Winnie Amos, Dennis Anderson, Shirley Ausmus, Mairi Babey, Susan Baine, James Baker, Toy Baker, Sharlene Becher, Anne-Marie Beckman, Margaret Brown, Darby Buckley-Jones, Rod Chisholm, Brooke Clibbon, Mary Clitheroe, Nancy Cook, Bob Cooper, Pat Cooper, Mary Coughlin, Sheila Cox, Ruth Craig, Eileen Dann, Luke Dewit, Ross Dickson, Doreen Dixon, Ted Dixon, Morag Dornian, Judith Doyle, Joal Duncan, Jean Dunn, Roger Dunn, Murray Duclos, Dave Elphinstone, Linda Evasiuk, Brian Exton, Sue Fletcher, Warren Ford, Shirley Fraser, Barry Giles, Howard Giles, Florence Godfrey, Joyce Goldsmith, Bob Greggs, Horst Grothman, Ian Halladay, Art Harris, Michael Harrison, Dorothy Haslett, Bud Henning, Lorraine Herwig, Shirley Hill, Cedric Hitchon, Bill Hooker, Catherine Hooker, Mary Huston, Marieke Jalink, Wim Jalink, Joanne Jamison, Linda Javeri, Judy Jekill, Ilse Joehnck, Linda Joehnck, Kate Jones, Chris Junck, Steve Kassai, Gordon Kerr, Esthelle Kethler, Allan Kimberley, Janice Kirkman, Ed Kissinger, Anita Kohse, Terry Korolyk, Ted Koziel, Ron Law, Hazel Litzgus, Corinne Lofthouse, Mac Love, Jo Luttmer, Ruth MacRae, Carson Manzer, Mary Manzer, Joanne Mark, Bob Marshall, Doris Marshall, Jan Marshall, Len Marshall, Belle Mathie, Bob Mathie, Joan McDonald, Malcolm McDonald, Glenn McCullough, Jean McCullough, Karen McCullough, John McFaul, Catherine McGlashan, Betty Milne, Claudette Monette-Brown, Jean Moore, Lynn Moore, Sherrold Moore, Wayne Moore, Gordon Neill, Margaret Neill, Dorothy Newman, Lynn Newman, Scott O'Keefe, Ingrid Pagenkopf, Bob Pella, Wally Platts, Heidi Plum, Jamie Podlubny, Jim Posey, Kay Power, Mike Power, Mike Preston, John Price, Michael Rogers, Scott Rogers, Peter Roxburgh, Tony Schreiber, Peter Sherrington, Gwen Simpson, Andrew Slater, Penny Smith, Bob Storms, Anne Taylor, John Thompson, Nicko Totino, Howard Troughton, Leah Truch, Eric Tull, Tina Van Egmond, Weldon Vickers, Suzanne Visser, Janice Waite, Rosemary Walkin, Jim Washbrook, Grace Webber, Tom Webber, Ray Woods, Pat Young, Rick Young.

Cardston: Dec. 26. Compiler: Shirley Sillito, Box

1102, Cardston, AB T0K 0K0. Participants: Jim Johansen, Ruth Olsen, Lynn Marsden, Shirley & Weldon Sillito.

Claresholm: Dec. 26. Compiler: Grace Norgard, Box 10, Claresholm, AB T0L 0T0. Participants: Grace Norgard, Hazel Hudson, Jason & Ruth Atwell, Al Williams, Bill Burbank.

Cypress Hills: Jan. 6. Compiler: Keith Bocking, Cypress Hills Provincial Park, General Delivery, Elkwater, AB T0J 1C0. Participants: Keith Bocking, Michael Klassen, O'Brien Tarnasky, Paul Avery, Heidi Eijgel, Jon Dewalt, Barb Appleby, Brent Skidmore, Shaun Skidmore.

Delburne: Dec. 30. Observers: Bonnie Potter, Rosalie Sybulka.

Devon/Calmar: Dec. 26. Compilers: Rufus & Karen Day, 6408 - 131 Street, Edmonton, AB T6H 3Y3. Barb & Jim Beck, Barbara Daniels, Karen Hermann, Louis & Wesley Hochochka, Bill Jopling, Dorothy Knull.

Dickson Dam: Dec. 30. Observer: Jim Allen.

Drayton Valley: Dec. 23. Compiler: Helmut Amelang, P.O. Box 6791, Drayton Valley, AB T0E 0M0.

Eaglesham: Dec. 18. Compiler: Anne Donaldson, Box 87, Eaglesham, AB T0H 1H0.

Edmonton: Dec. 30. Compiler: Debbie Kronewitt Martin, 9319 - 177 Ave., Edmonton, AB T5Z 1H7.

Elk Island: Dec. 16. Compiler: Geoff Holroyd, Canadian Wildlife Service, 4123 - 122 Street, Edmonton, AB T6J 1Z1. Participants: Peter Achuff, Jean Burgess, Wendy Calvert, Bob & Jan Carroll, Pat Crossley, Dierdre Griffiths, Geoff Holroyd, Brian Hornby, Art Hughes, Linda Jarmolicz, Jim Lange, Jennie Manson, Gerald McKeating, Jack Park, Chantel Pattenden, Dave Pick, Margo Pybus, Bill Richards, Jim Woolford (Edmonton Natural History Club, Friends of Elk Island Society).

Elk Point: Dec. 30. Compiler: Stephen Montgomery, General Delivery, Elk Point, AB T0A 1A0. Participants: Melvin McGinnis, Fay Smith, Irene Magnusson, Sheila Thompson, Marvin Bjornstad, Michelle Anton, Sherry Pelech, Dianne Huffman, Barbara Milholland, Lyn Young, Wesley Scott.

Erskine: Dec. 30. Compiler: Lloyd Lohr, Box 1414, Stettler, AB T0C 2L0. Observers: R. Burmeister, A. & B. Clarke, G. & W. Hewlett, M. & R. Kruger, L. Lohr, M. Walentowitz.

Fort McMurray: Dec. 16. Compiler: Brad Arner, 241 Gladstone Bay, Ft. McMurray, AB T9K 1S3. Participants: Bill Hunter, Diane Hunter, Kit Hunter, Peter Hunter, Patricia Connolly, Bob Whetham, Gretchen Whetham, Sarah Whetham, Brad Arner, Ken McKeachern, Lorie Eddy, Joan Thompson, Jonathan Wilson, Grant Henry, Charles Graves, Meridel Graves, Ruth Kleinbub, Adam Kleinbub, Leslie Tuck, Vi Tuck, Marcella Dankow, Helen Pachalko, Mrs. Mitchell, Fred Korbut, Hans Boerger, Romeo Dominque, Jim Walbridge, Garth Bishop, Janis Arner, Terry Van Meer.

Fort Saskatchewan: Dec. 15. Compiler: William M. Richards, 9125 - 94 Ave., Fort Saskatchewan, AB T8L 1B8. Participants: Raymond Cromie, Arthur Hughes, Joan LeComber, David Pick, William Richards, Trevor Roper, Elmer Thomas, Eric Young, Grace Young.

Hinton: Dec. 22. Compiler: Beth MacCallum, 110 Seabolt Dr., Hinton, AB T6V 1K2. Participants: Beth MacCallum, Barry & Andrew Godsalve, Gerry Wilde & Dave Hobson, Rick Bonar, Peggy & Brad Armstrong, Ann Bronson, Rob Stewart & Heather Kleb, Brad, Peggy & Naomi Arstrong, Chris Curry, Max & Gwen Kudrenecky, Lorraine & Norm Keil, Ernie Mazanchuk, Brenda & Clare Armstrong, Norma Bonar, Jack Wright, Leslie & Laura Simmonds.

Homeglen: Dec. 16. Compilers: D. Murray Mackay, Box 1479, Ponoka, AB T0C 2H0 & Carolyn Macaulay, Ponoka, AB. Participants: Bob Bartholow, Jack & Eve Burns, Mr. & Mrs. Frank Lind, Art Walcheski.

Horseshoe Canyon: Dec. 23. Compiler: Robert Storms, #905, 815 - 14th. Ave., S.W., Calgary, AB T2R 0N5. Participants: Ross Dickson, Louis Guillemette, Mike Harrison, John Riddell, Wayne Smith, Robert Storms, John Thompson, Howard Troughton, Merrill Wershler, Ray Wershler.

Jasper: Dec. 15. Compiler: Ben Gadd, Box 245, Jasper, AB T0E 1E0. Participants: Alan & Joyce Butler, Sheila Couture, Ben Gadd, Chris Garnham, Arvin & Mary Hilworth, Lorne Howard, Gord Ruddy, Roy Richards, Volker Schelhas, Connie Sawka, Margaret Watt.

Kneehill Valley: Dec. 30. Observer: Dorothy Dickson.

Lacombe: Dec. 30. Observers: Michael McNaughton, Don McNaughton, Anna & Jim Robertson, Lynette Michael & Berry Hart, Joan Susut, Joanne Susut.

Larkspur: Dec. 31. Compiler: Patricia E. MacKonka, P.O. Box Box 118, Dapp, AB T0G 0S0. Participants: William Stilwell, Tom Moore, Frances Moore, Roy Briggs, Doris Briggs.

Lethbridge: Dec. 29. Compiler: Graeme Greenlee, 2018 - 23 Avenue South, Lethbridge, AB T1K 1K6. Participants: Annie, Dale & Paul Baumback, Lloyd Bennett, Anne & Bill Brown, Linda Cerney, Doug & Teresa Dolman, Graeme & Pat Greenlee, Dick Gwatkin, Joan Haig, Bill & Jean Haire, Alice & Frank Harper, Alice Luchansky, Ted Lundstad, Jennifer Mather, Ray & Sheila McHugh, June Mowers, Emily, Gordon & Laure Neish, F. Quinell, Doris Rhodes, Alan Roberts, Frank Russell, Jim & Liz Savoy, Bill Skelton, Hazel West, Jessica, Joyce & Paul Wilkinson, Diana Williams.

Medicine Hat: Dec. 16. Compiler: Dennis Baresco, 130A - 3rd. St., N.E., Medicine Hat, AB T1A 5M1. Participants: Creston Anderson, Denise Brace, Dennis Baresco, Kelly & Richard Boglc, Bill Brown, Barb & Ron Chisholm, Margaret Cocks, Bob Frew, Corlaine, Evan, Laurel & Rob Gardner, Florence Havill, Gary Hooper, Matthew & Phil Horch, David & Pat Jamieson, Anna Johnston, Lex Karne, Luke Lindoe, Donna Maclean, James & Lorine Marshall, Peter Mehrer, John & Marion Mitchell, Mr. & Mrs. E.M. Moore, Gary Newton, Mr. & Mrs. J. Newton, Todd O'Bray, Michael O'Shea, Mark Oxamitny, Lenore & Doug Shepherd, Ivan Skukster, Brent, Charlene, Jemma & Shawn Skidmore, Veronica & James Swan, Dan & Joanne Taylor, Bill & Rugh Tidy, Ben & Michael Velner, James Wooding.

Pine Lake: Dec. 30. Observers: Ron & Margaret Underwood

Ponoka: Dec. 16. Compilers: D. Murray MacKay & Carolyn Macaulay, Box 1479, Ponoka, AB T0C 2H0. Participants: Dorothy & Les Bossenberry, George & Shiela Debney, Keith & Barbara Floyd, Joyce & Elmer Hageman, Irene & Eric Kolke, Larry Lentz(Mr. & Mrs.), Katherine Love, Mildred Lyons, Margaret & Murray Mackay, Carolyn Macaulay, George & Vivian McCaughey, Mr. & Mrs. M. Mattern, Lisa & Eric Osterguaard, Allan Reid, Tony Vandenburg family, Mr. & Mrs. Roy Vold, Phylis & Art Walcheski, Judy Walde, Dorothy & Don Wiesmeuller.

Prairie Oasis: Dec. 26. Compiler: Joan McDonald 91 Range Way, N.W., Calgary, AB T3G 1H6. Participants: Ross Dickson, Joan McDonald, Malcolm McDonald.

Raven: Dec. 30. Observers: John Henderson, Myrna Lundgren.

Red Deer: Dec. 30. Compiler: Myrna Pearman, Box 127, Sylvan Lake, AB T0M 1Z0. Observers: Ray Allen, Peggy Anderson, Ryan Best, Ron, Roy & Michael Bjorge, Ray & Freda Bertram, Eileen Brayford, Aaron Collins, Minnie Cunningham, Casey, Ida, Jeremy & Mark de Biesen, Morris Flewwelling, Ursula & George Fedak, Janice, Ryan & Andrew Findlay, Jean Guye, Jerri Gerling, Margaret Glabais, Lorne Gould, Dorothy Hazlett, Dorothy Hill, Donna Kafara, Dolores Jones, Irene James, Clark Johnston, Keith Kline, Joan & Murray Lamb, Eileen & Bud Lund, Greg Mackenzie, Judy May, Bernice McClement, Betty & Jan McGhee, Michael McNaughton, Coleen Meldum, Dorothy & Sandy Murray, Joyce, Mandy, Adam & Robin Neiman, Michael & Jennifer O'Brien, Sara & Oscar Orr, Roger Packham, Lynda, Barry, Kyle & Tyler Parrington, Myrna Pearman, Marie Pierce, Dave Prescott, Jim Robertson, Keith & Beryl Steele, Harvey Smith, Mary & Al Taylor, Rod Trentham, Eric Wilberg, Wes, Gayle, Fiona, Matthew & Naomi Williams, Kerry, Marjorie & Rondo Wood.

Rimbey: Dec. 30. Observers: Earl & Mary Eadie.

St. Paul: Dec. 16. Compiler: Blair Rippin, 5121 - 45 Avenue, St. Paul. AB T0A 3A4. Participants: B. Rippin, R. Decosse, H. Norris, D. Norris, M. Norris, P. Boisvert, L. Weins, W. Yackimec, L. Senecal, G. Hamilton, S. Hamilton, F. Kunnas, V. Hudson, N. Hudson, R. Makowecki, G. Gunderson, R. Gunderson, L. Demchuk, G. Demchuk, J. Laux, R. Brown, G. Sterling, J. Renouf, D. Giggs, D. Giggs, K. Pugh, G. McCormick, M. Legasse.

The Snake's Head: Dec. 29. Compiler: Doug Collister, 3426 Lane Cres., S.W., Calgary, AB T3E 5X2. Participants: Luke DeWit, Ross Dickson, Horst Grothman, Michael Harrison, Ferrell Haug, Mary Huston, Allan Kimberley, John McFaul, Jamey Podlubny, Dave Prescott, Wayne Smith, Don Stiles, Robert Storms, Howard Troughton, Ray Wershler, Merrill Wershler.

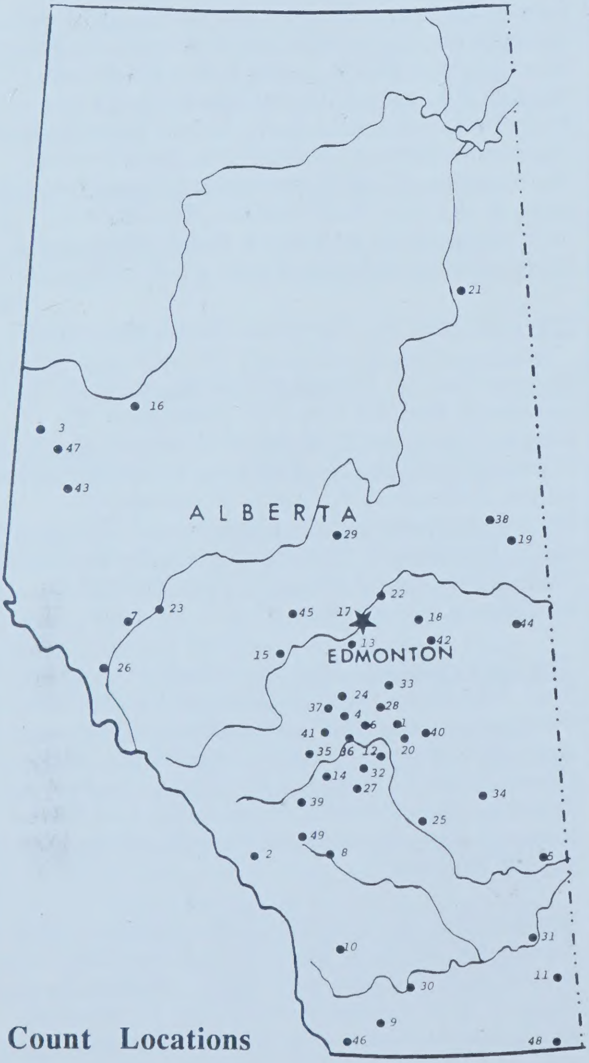
Stettler: Dec. 16. Compiler: Lloyd Lohr, Box 1414, Stettler, AB T0C 1L0. Participants: J. Becklund, J. Burrell, A. & B. Clarke, F. Dodds, L. Greenlee, E. Gross, G. & W. Hewlett, B. & M. Lohr, W. Muhlbach, M. Simons, M. Walentowitz, J. & L. Williamson, P. Cooper, N. Dean, E. & T. Grafe, R. Lehman, R.

Shuckburgh, D. & R. Unruh.

Sylvan Lake: Dec. 30. Observers: D. Ammeter, Ralph & Donna Cook, Kate More, Elizabeth & Albert Peck, Heather Sjare, Emily Stinn, Orville & Berry VanSlyke.

Tofield: Dec. 30. Compiler: Roy Fairweather,. R.R. 2, Tofield, AB T0B 4J0. Participants: Roy Fairweather, Jessie Fairweather, Peter Kershaw, Betsy Howland, Bill Whalley, Sylvia Schneider, John & Leni Honsaker.

Trapline: Dec. 16. Compiler: Ellen Craig, R.R. #1, Wembley, AB T0H 3S6. Participants: Gavin & Ellen Craig.



Count Locations

Vermilion: Dec. 16. Compilers: Peter Duck & Nancy Twynam, General Delivery, Vermilion, AB T0B 4M0.

Wabamun Lake: Dec. 16. Compiler: Alan Hingston, 53 Wakefield Blvd., St. Albert, AB T8N 3G1. Jim & Barb Beck, George Cheeseman, Kim Clark, Pat & Dick Clayton, Vince Cottrell, Doris & Gerry Cuthoys, Peter Demulder, David Ealey, Doug Edgar, Jim Faragini, Jamie & Rob Glasgow, Alan Hingston, Derek Johnson, Stefan Jungkind, Gerry Lunn, Dave Nadeau, Harold Pankratz, Alf Scott, Eric Wallace, Fred Whiley, Peter Whitehead.

Waterton Lakes: Dec. 15. Compiler: Teresa Dolman, 37 Carleton Road, W., Lethbridge, AB T1K 3X4. Participants: Lloyd Bennett, Teresa & Doug Dolman, Joan & Bob Fraser, Andrew & Witold Gierulski, Graeme & Pat Greenlee, Betty Haig, Terry Hammell, Lois McKillop, Murry Neville, Doris Rhodes, Shirley Sillito, Janice & Fraser Smith.

Wembley: Dec. 15. Compiler: Ellen Craig, R.R. #1, Wembley, AB T0H 3S0. Participants: Gavin & Ellen Craig.

Wild Horse/Sage Creek: Dec. 18. Compiler: Ross Dickson, 5-2303 - 22 Street, N.W., Calgary T2M 3W5.

Wildlife Reserve: Jamey Podlubny, 3516 - 60 Street, N.W., Calgary T3B 5E8. Participants: Mairi Babey, Doug Collister, Eileen Dann, Ross Dickson, Olga Droppo, Joel Duncan, Roger Dunn, Ingrid Ektvedt, Shirley Fraser, Angela Gottfred, Jeff Gottfred, Horst Grothman, Michael Harrison, Clay Hunt, Doug Jermyn, Karen McCullough, John McFaul, May Parker, Jamey Podlubny, Jim Posey John Riddell, Peter Sherrington, Wayne Smith, Bob Storms, Don Stiles, Howard Troughton, Merril Wershler, Ray Wershler, Ray Woods, Rob Woods.

Christmas Count Coverage and Weather Conditions

MAP NO.	COUNT NAME	KMS BY VEHICLE	KMS ON FOOT/SKIS	HOURS VEHICLE	HOURS ON FOOT/SKIS	WATCH HRS. FEEDERS/ OWLING	MAX TEMP DEG CELC	MIN TEMP DEG CELC	MAX WINDSP. KMH	MIN WINDSP. KMH	MAX DEPTH SNOW CMS	MIN DEPTH SNOW CMS
1.	Alix	0	3	0	6	0	-12	-20	0	0	35	3
2.	Banff/Canmore	182.5	50.5	10.5	44.5	31	-6	-12	16	0	70	50
3.	Beaverlodge	221	1.5	12.5	1.5	7.5	-3	-20	30	0	63	0
4.	Bentley	50	5	2	2.25	57.25	-10	-18	0	0	35	5
5.	Bindloss	80	5				0	-14				
6.	Blackfalds					0.5	-10	-20	2	0	100	5
7.	Brule	0	6	0	2	8	0	-4	70	40	60	30
8.	Calgary	369	157	39	166	276	-9	-15	10	8	30	0
9.	Cardston	107	4	3	3	3	-4	17	83	50		
10.	Claresholm	291	3.5	14	2	2	-6	-8	45	0	50	0
11.	Cypress Hills	70	15	2	12.5		-19	-25				
12.	Delburne	0	1	0	0.75	7	-15	-17	10	0	80	5
13.	Devon/Calmar	227	5	9.25	2.5	23	-9	-16	16	9	18	3
14.	Dickson Dam	0	3	0	4	0	-10	-18			100	5
15.	Drayton Valley	180	4	6	2	2	-6	-14	5	3	45	30
16.	Eaglesham						-33	-38			40	10
17.	Edmonton	1881	473	102	324	1285	-15	-22	5	0	30	0
18.	Elk Island	93	72	7	50	3	-18	-27	10	0	10	0
19.	Elk Point	10	8	1	3	35	-25	-30	25	5	100	1
20.	Erskine	200	12.5	10.5	6.75	0	-15	-18	10	3	20	2
21.	Fort McMurray	260	56	19	27.5	18	-16	-30	3	0	25	10
22.	Fort Saskatchewan	285	15	27	6	19					18	0
23.	Hinton	350	10	20	5.25	35	-12	-20	15	0	30	15
24.	Homeglenn	80	6	4	5	12			10	0	35	10
25.	Horseshoe Canyon	512	78.5	21.25	36.5	0	-6	-18	40	0	12	5
26.	Jasper	60	30	2.5	31	12	0	-2	15	0	20	5
27.	Kneehill Valley	0	6	0	2	5	-15	-16	0	0	120	2
28.	Lacombe	26	6	2.5	7	3	-8	-12	15	5	80	15
29.	Larkspur	140	2	6	1	7	-22	-20	20	10	45	30
30.	Lethbridge	325	42	17	23	17	-17	-35	87	6	15	0
31.	Medicine Hat	580	86	27	48	40	-2	-11	16	0	60	15
32.	Pine Lake	0	3	0	1.5	6	-15	-25	0	0	60	5
33.	Ponoka	343	6	8	3	192			10	5	25	4
34.	Prairie Oasis	140	3	5.75	1.25	0	-13	-16	30	5	100	2
35.	Raven	9.5	12	0.5	6	2	-11	-20	0	0	8	3
36.	Red Deer	31.5	107.5	3.75	44.75	102.5	-10	-20	2	0	100	5
37.	Rimbey	0	0	0	0	5	-10	-18	0	0	120	2
38.	St. Paul	487	13.5	30	8	4	-17	-20	0	0	20	2
39.	Snake's Head	798	43.5	32	26.5	12	-12	-46	16	0	30	20
40.	Stettler	250	20	10	7.5	25	-8	-19	0	0		
41.	Sylvan Lake	0	4	0	2	38	-11	-15	8	0	120	2
42.	Tofield	422	1.5	15.75	0.75	10	-14	-16	10	0	30	2
43.	Trapline	200	0	3	0	0	-17	-20	5	2	65	30
44.	Vermilion	492	10	23	2.5	11					20	10
45.	Wabamun Lake	877	64	33	37	32.5	-12	-20	15	0	30	5
46.	Waterton Lakes	109	32	15	24	5	0	-6	80	40	200	0
47.	Wembley	170	0	6	0	2	-17	-20	5	2	65	30
48.	Wild Horse/Sage Cr	146	5	5	1	0	-6	-12	15	0	10	0
49.	Wildlife Reserve	763	149	33.5	70.5	13	-4	-11	48	16	30	7.5

Alberta Christmas Bird Counts 1990

LOCALITY SPECIES	ALIX	BANFF/ CANMORE	BEAVERLODGE	BENTLEY	DINDLOSS	BLACKFALDS	BRULE	CALGARY	CARDSTON	CLARESHOLM	DELBURNE	DEVON/ CALMAR	DICKSON DAM
Mallard		925						15800					34
Common Goldeye		184						275					6
Common Merganser								65					
Bald Eagle	1	1						4		1			2
N. Goshawk		1	1					2					
Rough-legged Hawk								2		2			
Golden Eagle									1	11			
Merlin								8	2	2		1	
Prairie Falcon					1			1		4			
Gray Partridge			14	37	6			165	10	92		7	
Ring-necked Pheasant	4		1	2	13			11	5	2		7	
Ruffed Grouse	2	1						15				1	1
Sharp-tailed Grouse			1		30			20	13	40			
Rock Dove		2	106	90	4			1735	80	419		353	
Great Horned Owl				1	2			15		2	1		
Snowy Owl			2	2	1			1		4		1	
Great Gray Owl		1	1										
N. Saw-Whet Owl	1							1					1
Downy Woodpecker		15	3	31		2	1	68	1	3	3	14	
Hairy Woodpecker		5	6	12		2	1	7			1	4	
Three-T. Woodpecker		2											
N. Flicker				1				43					
Pileated Woodpecker	1				1			1					
Horned Lark					50				28	2500			
Gray Jay		47	5				2						
Blue Jay	2	1	20	45				103	2	11	5	23	
Bl.-billed Magpie	6	204	105	44	68		1	1443	13	156	1	110	
American Crow		16						21					
C. Raven	1	241	23	1			2	133		18		6	
Bl.-capped Chickadee	4	234	68	233	4	20	15	944	3		8	144	3
Boreal Chickadee		76						25			3	8	
Red-br. Nuthatch		75						96		1		2	
White-br. Nuthatch		9	3	8		2		27				3	
Brown Creeper		14						22					
American Dipper		37						2					
Golden-cr. Kinglet		7						85					
Bohemian Waxwing	28	4	3	25	12			13796		265		310	
Northern Shrike		1	2					3		2		2	
European Starling			8					462	10	27			
Am. Tree Sparrow								14					
Wh.-throated Sparrow		3						3					
Dark-eyed Junco		59	1					98					
Snow Bunting	11	52	263	35						31		30	
Pine Grosbeak	5	81	74	79				82		1		11	
Red Crossbill		1						47					
Wh. Winged Crossbill		3						65				3	
C. Redpoll			30	386	2	40		287		18		57	
Hoary Redpoll			2	45				1				1	
Pine Siskin		6						25				1	
Evening Grosbeak		98		137	59	10	6	2				18	
House Sparrow	50	107	90	304		30	1	1988	174	243	60	117	
Total Species	16	46	25	20	14	7	8	70	13	25	8	25	6
Total Individuals	145	2842	839	1518	253	106	29	38414	342	3858	82	1234	47
Total Observers	1	22	7	24	13	3	3	139	5	6	1	10	1

Alberta Christmas Bird Count 1990

LOCALITY SPECIES	DRAYTON VALLEY	EARLE-SHAM	CYPRESS HILLS	EDMON-TON	ELK ISLAND	ELK POINT	ERSKINE	FORT McMURRAY	HINTON	HOME-GLENN	HORSESHOE CANYON	JASPER	KNEEHILL VALLEY
Mallard				4783								19	
Common Goldeneye				624								27	
Common Merganser												2	
Bald Eagle							1					1	
N. Goshawk	2		2	8	4			1	3		2		
Rough-legged Hawk					1								
Golden Eagle	1			1							5		
Merlin				24							1		
Prairie Falcon											1		
Gray Partridge				317						11	41		
Ring-necked Pheasant				56							40		
Ruffed Grouse	1			29	4	1		3	4	4	1		
Sharp-tailed Grouse	8			13									
Rock Dove				2573		50	15		1		79		
Great Horned Owl	1		2	29	5		2		1		7		
Snowy Owl				4							2		
Great Gray Owl								1					
Short-eared Owl											5		
N. Saw-Whet Owl				4								1	
Downy Woodpecker	4	1	2	201	46	9	5	4	1	9	20	3	3
Hairy Woodpecker	4	1	2	90	29	7	2	10	1	11	3	3	
Three-toed Woodpecker				1				1				2	
N. Flicker				7							1		
Pileated Woodpecker				21	3	1						2	
ray Jay	6			13				15	11	5		12	
lue Jay	12	7		1081	51	43	5	34	5	12	23		3
lack-billed Magpie	7	1	12	2362	72	8	71	5	15	10	260	32	7
merican Crow			1	3	2			1				19	
. Raven	12			9	20	4	1	260	419	2	6	194	
l.-capped Chickadee	35	6	39	3943	421	173	52	91	119	59	243	48	6
oreal Chickadee				32	37	1		14	6	2	1	2	
ed-br. Nuthatch			22	55			2	1	2		62	10	
hite-br. Nuthatch	2			143	17	6				8		2	
rown Creeper			1	3	6						2	2	
merican Dipper												19	
olden-cr, Kinglet				8	13				2		4		
ohemian Waxwing	27		9	16372				19			277	76	
orthern Shrike	1			3	1		1				1		
uropean Starling				443			1	15	7		18	1	
m. Tree Sparrow				4							4		
h.-throated Sparrow												2	
ark-eyed Junco				113								6	
now Bunting	75			171	7	77	225	20	90		291		
ine Grosbeak	28	42	10	253	4	141	1	276	138	17	11	19	
ed Crossbill				17				200			61	12	
h.-winged Crossbill				43				19			39		
. Redpoll	85	38	2	1890	86	23	25	65		80	104	1	
oary Redpoll	9			23		4		6			2		
ine Siskin				181					4			8	
vening Grosbeak	31			163	29	130		186	57	37		20	
ouse Sparrow				7751	12	110	149	45	2	27	440	220	26
otal Species	20	8	13	53	24	18	16	25	21	15	37	36	5
otal Individuals	351	100	124	43763	870	789	558	1295	895	294	2673	816	45
otal Observers	1	1	9	877	20	12	9	30	22	6	10	13	1

Alberta Christmas Bird Count 1990

LOCALITY SPECIES	LACOMBE	LETH-BRIDGE	MEDICINE HAT	PINE LAKE	PONOKA	PRAIRIE OASIS	RAVEN	RED DEER	RIMBEY	ST.PAUL	SNAKE'S HEAD	STETTLER	SYLVAN LAKE
Mallard		1100	670		1	240		204		14	18		
Common Goldeneye		138	77			6		21					
Common Merganser		1	18										
Bald Eagle		12	7					1					
N Goshawk		1	1		2			1		3			
Rough-legged Hawk		1									4		
Golden Eagle		2	1								2		
Merlin		3	4		3			2					
Prairie Falcon		3	3										
Gray Partridge		148	31		39	19	6			41	17		
Ring-necked Pheasant		63	63					1					
Ruffed Grouse					12			4		4	1	2	13
Sharp-tailed Grouse		60	3			51				49			
Rock Dove	21	197	2213		184	6	17	126	6	241	48	140	12
Great Horned Owl	1	7	6		3	1				4	3	7	
Snowy Owl		2	1		6	1				1			
Great Gray Owl											1		
Short-eared Owl		1				1					6	1	
N. Saw-Whet Owl								1			1		1
Downy Woodpecker	14	9	20	3	11		38	39	1	9	24	18	22
Hairy Woodpecker	9	1			6		15	19	1	12	16	8	8
Northern Flicker		9	36										
Pileated Woodpecker	1							2		1	7		4
Horned Lark		1723	292			3							
Gray Jay							2	1			49		
Blue Jay	31	8	12	3	27		40	144		19	46	31	31
Bl.-billed Magpie	24	143	669	2	166	22	8	276	3	141	117	162	4
American Crow		9						2					
C. Raven	1			1	7		1	4	2	15	154		5
Bl.-capped Chickadee	134	51	90	5	225		245	839	12	146	286	132	149
Boreal Chickadee	22				2		77	25		2	98		
Red-br. Nuthatch	1	3	28		5		13	41			3	2	
White-br. Nuthatch	10	3			10		23	40		8	11		10
Brown Creeper	3		3					5					
American Dipper											2		
Golden-cr. Kinglet			7								1		
Bohemian Waxwing	122	11	599		300		55	3070		1000		66	60
Northern Shrike	1		3	1	1			1	1	1	4		
European Starling	14	78	159		50			229		20			
Am. Tree Sparrow		20	43										
Wh.-throated Sparrow		1						1			1		
Dark-eyed Junco	6	3	71		1		5	20		7	2		
Snow Bunting	31	15	4		555	89				1411	733		
Pine Grosbeak	36	1			57		46	39	10	2	45	3	9
Red Crossbill								50					
Wh.-winged Crossbill					8			74					
C. Redpoll	32	47	23		63		83	182	50	1	337	123	101
Hoary Redpoll		2						5	5		1		
Pine Siskin			15		4			22		2	30		
Evening Grosbeak	51		1		89		26	53	75	17	83		10
House Sparrow	71	733	2841	1	589	34	36	448	50	1133	61	360	103
Total Species	23	41	40	7	28	13	18	35	12	28	35	15	16
Total Individuals	637	5778	9452	16	2426	475	736	5992	216	4418	2216	1056	542
Total Observers	9	38	53	2	33	3	2	77	2	28	16	24	13

Alberta Christmas Bird Count 1990

LOCALITY SPECIES	TOFIELD	TRAPLINE	VERMILION	WABAMUN LAKES	WATERTON LAKES	WEMBLEY	WILD HORSE/ SAGE CREEK	WILDLIFE RESERVE	FT. SASK.	LARKSPUR	TOTAL
Mallard				84	3			65	26		23986
Common Goldeneye				134	19				243		1754
Common Merganser				4	1						91
Bald Eagle				2	1			1	1		36
N. Goshawk	1	1		2		2		2		1	40
Rough-legged Hawk			1		3	4	4	3			25
Golden Eagle		3			2	1		4			34
Nerlin									1	1	52
Prairi Falcon							1				14
Gray Partridge			7			35		5	57		1095
Ring-necked Pheasant				1		1	13				283
Ruffed Grouse			9	13	5	14		9	1	1	155
Sharp-tailed Grouse			19	2	1	41		3			354
Rock Dove	131		85	26		65		32	171		9228
Great Horned Owl	3		2	10	1	1	1	4	5		127
Snowy Owl						10					38
Great Gray Owl		2					2				8
Short-eared Owl			1								15
N. Saw-Whet Owl				12							23
Downy Woodpecker	22		4	54	5	4		37	7	6	796
Hairy Woodpecker	13	1	7	43	4	6		22	3	6	401
Three-T. Woodpecker		1						7			14
N. Flicker											97
Pileated Woodpecker				6				7			58
Horned Lark						1					4597
Gray Jay		2	1	44	12			66		7	300
Blue Jay	58		33	183		15		42	15	26	2252
Bl.-billed Magpie	138	4	134	225	13	190	5	123	149	17	7748
American Crow				2				4			80
C. Raven	5	15		103	5	195		222	7	4	2098
Bl.-capped Chickadee	260	2	83	966	45	60		496	115	31	11287
Boreal Chickadee		2		49	4			142	2	6	638
Red-br. Nuthatch				2	9			18	1		454
White-br. Nuthatch	15		1	40	2			13	3		419
Brown Creeper					3			3			67
American Dipper					6			5			71
Golden-cr. Kinglet				5	3			13			148
Bohemian Waxwing			110	40		16			135		36807
Northern Shrike	1		2	8		1	1	5			48
European Staring				8							1550
Am. Tree Sparrow								2			87
Wh.-throated Sparrow				1							12
Dark-eyed Junco				3	9	1		5			410
Snow Bunting			40	150	75	400	37	908	20	376	6222
Pine Grosbeak	77	18	2	98	8	28		76	22	25	1857
Red Crossbill											388
Wh.-winged Crossbill		5		2				42			303
C. Redpoll	441	200	20	252	2	50		506	15	7	5554
Hoary Redpoll	5	3		7				1			122
Pine Siskin	4			2							304
Evening Grosbeak	93			404		40		15	15	56	2015
House Sparrow	171		336	133		6	11	119	23		19205
Total Species	17	15	20	52	34	26	9	38	25	16	105
Total Individuals	1438	263	897	3255	285	1188	76	3039	1241	572	148496
Total Observers	30	2		25	17	2	1	30	19	6	1678

Species Recorded on Five or Fewer Counts

SPECIES	COUNTS AND NUMBER RECORDED
Horned Grebe	Waterton Lks. 2
Western Grebe	Wabamun Lk. 8; Waterton Lks. 5
Great Blue Heron	Calgary 1
Canada Goose	Calgary 313; Edmonton 71; Lethbridge 967; Medicine Hat 1422; Wabamun Lk. 6
Wood Duck	Calgary 1
Green-winged Teal	Banff/Canmore 12; Calgary 1; Snake's Head 1
Northern Pintail	Calgary 5; Edmonton 1
Gadwall	Calgary 11; Wabamun Lk. 8
American Wigeon	Calgary 1; Wabamun Lk. 28
Canvasback	Wabamun Lk. 1
Redhead	Calgary 1; Wabamun Lk. 21
Lesser Scaup	Calgary 5; Wabamun Lk. 29
Harlequin Duck	Calgary 3
Oldsquaw	Wabamun Lk. 2
Barrow's Goldeneye	Banff/Canmore 7; Calgary 7
Goldeneye sp.	Banff/Canmore 10
Bufflehead	Banff/Canmore 3; Calgary 7; Jasper 2; Wabamun Lk. 4; Waterton Lks. 6
Hooded Merganser	Calgary 4; Prairie Oasis 2; Wabamun Lk. 21
Northern Harrier	Medicine Hat 1
Sharp-shinned Hawk	Horseshoe Canyon 1
Cooper's Hawk	Banff/Canmore 1; Calgary 1; Edmonton 1
Accipiter sp.	Banff/Canmore 1; Calgary 1
Swainson's Hawk	Medicine Hat 1
Gyrfalcon	Calgary 4; Edmonton 1; Horseshoe Canyon 2; Medicine Hat 1; Wabamun Lk. 2
Hawk sp.	Beaverlodge 1; Medicine Hat 2; Ft. Saskatchewan 1
Spruce Grouse	Trapline 4; Waterton Lks 2; Wildlife Reserve 1
Sage Grouse	Wildhorse/Sage Creek 3
Grouse sp.	Beaverlodge 1
Wild Turkey	Cypress Hills 22
American Coot	Wabamun Lk. 1
Common Snipe	Banff/Canmore 2
Ring-billed Gull	Waterton Lks. 5
Mourning Dove	Lethbridge1
Northern Hawk-Owl	Alix 1; Beaverlodge 5; Snake's Head 3; Wabamun Lk. 2; Wembley 1
Barred Owl	Edmonton 1
Boreal Owl	Elk Island 1; Elk Point 1
Owl sp.	Wildlife Reserve 1
Belted Kingfisher	Banff/Canmore 5; Calgary 2; Hinton 1; Medicine Hat 2
Black-backed Woodpecker	Elk Island 2; Lacombe 1; Wabamun Lk. 1; Ft. Saskatchewan 1
Woodpecker sp.	Hinton 2
Steller's Jay	Jasper 7; Waterton Lks. 5
Clark's Nutcracker	Banff/Canmore 50; Jasper 11; Waterton Lks. 4

Mountain Chickadee	Banff/Canmore 191; Calgary 1; Jasper 21; Waterton Lks. 14; Wildlife Reserve 10
Chickadee sp.	Banff/Canmore 29
Nuthatch sp.	Larkspur 2
Winter Wren	Calgary 1
Brown Thrasher	Wabamun Lk. 1
Townsend's Solitaire	Calgary 6; Edmonton 1; Horseshoe Canyon 1; Jasper 1
American Robin	Alix 1; Calgary 3; Claresholm 3; Edmonton 2
Varied Thrush	Banff/Canmore 1; Edmonton 1; Lethbridge 1; Waterton Lks. 1
Cedar Waxwing	Calgary 7; Edmonton 3
Swamp Sparrow	Calgary 1
Song Sparrow	Banff/Canmore 3; Jasper 3
Lapland Longspur	Lethbridge 200; Medicine Hat 7
Rusty Blackbird	Banff/Canmore 1; Calgary 6; St. Paul 1
Brewer's Blackbird	Ft. McMurray 3
Blackbird sp.	Stettler 1
Common Grackle	Calgary 3
Rosy Finch	Jasper 6; Trapline 18
Purple Finch	Edmonton 17
Redpoll sp.	Alix 27; St. Paul 91
Bird sp.	Hinton 4

Author's Address:
152 Oakside Circle, S.W.
Calgary, Alberta T2V 4H2

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December 02 - 03 1991

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Book Reviews

A Prairie Coulee

Thomas Willock
Lone Pine Publishing, Edmonton, Alberta
1990. 95 pages. $8.95 soft cover.

"On the prairie, in a landscape that seems, at first, to consist only of shimmering earth and pillow-clouded sky, there is a special diversity of environments. The most distinctive of these is the coulees."

The coulees-what picture springs to mind? As a resident of southeastern Alberta, I think of wildness, even in the city. I imagine the steep brushy side hills that shelter deer, pheasant, skunks, and abundant bird life within a block of downtown. There are wild places for childhood hideouts, and quiet places for adult retreats.

Just as the accessible coulees in the city draw us, the coulees of the open prairie appeal to many, and yet remain relatively unknown. Thomas Willock has produced, with his sensitive writing and powerful photography, a book which invites us into the prairie coulee.

His intimate knowledge of the coulees flows through clearly as we read, and we can sense the feelings he has for this landscape. But this small book is more than an essay of appreciation. It is also a reference. The deceptively easy reading is full of the relationships of land, plant, and animal. Where the text occasionally threatens to become a catalogue of species, the author sidesteps into interesting anecdotes or details of life histories.

This is a gentle and hopeful book. It recognizes that there have been losses, changes, but it also enjoys what is still here, and believes in the future. In a landscape often dismissed as monotonous, the coulees attract even the non-prairie dweller. And here is a book to help us all look and enjoy with more understanding.

Corlaine Gardner

* * * * * *

A Prairie Coulee

Thomas Willock
Lone Pine Bublishing, Edmonton, Alberta,
1990. 95 pp. $8.95 soft cover.

I spent the best part of my teen years growing up in a small town (Vauxhall, Alberta) on the shortgrass prairie. The author rekindled many fond memories of times spent on the banks of the Bow and Old Man Rivers. "Special places exist only in the minds of the observer."

The book provides a broad overview of the items that make up a coulee ecosystem. The scout leader, the biology teacher or the Sunday afternoon adventurer would gain a host of ideas on what to look for during a trip to any coulee. One such idea might be the variation in vegetation between north and south facing slopes (p.30). A second idea might be to locate a "maze of tunnel-like paths" either in the grass made by mice or in the brush where whitetail and mule deer take refuge.

You are required to use your imagination at times such as in the passage relating the buffalo jump or the sun rising on the dancing ground of the sharp-tailed grouse. In each of the five sections of the book: coulee, plant, water, bird and mammal, the author parts with just enough information to keep the novice interested. The keen young adventurer will say "I must read more about that subject."

The photographs are of excellent quality. They instill a sense of the diversity of the coulee ecosystem.

I mentioned imagination in one paragraph and photographs in another; if you put the two together and study plate 18: Silverweed (Potentilla anserina) you may find three leaves that match the description. A little voice leaning over my left shoulder suggests the flowers are Creeping Buttercup (Ranunculus cymbalaria) and I tend to agree.

Generally, we would all be royally entertained if Mr. Willock was our tour guide on an excursion through a prairie coulee. I enjoyed re-living some fond memories of a well spent youth in southern Alberta.

E.B. Robson

* * * * * * *

Rare Vascular Plants in Canada. Our Natural Heritage.

George W. Argus and Kathleen M. Pryer.
Canadian Museum of Nature, Ottawa, Ontario 1990. 191 pp. + maps. $18.95.

"Canada is a vast country covering over 10,000,000 sq km. Our awareness, indeed awe, of this gigantic scale has provided our society with a mythology of limitless resources. This is especially true of the natural vegetation that seems to be everywhere. Even in the most densely populated places one is not far from being able to see what appears to be natural vegetation. The need for concern about the loss of our native vegetation, an essential part of our biological diversity, has been mitigated by this subconscious impression of never-ending abundance. If natural vegetation was destroyed in one place, there seems to be an underlying assumption that there was more of it somewhere else. As individuals we know this is not true, but as a society we act as though it were. Throughout our history the perceived need to eliminate natural vegetation for living space, economic development, and protection against hostile forces, has far outstripped our awareness of a need for its preservation. The parts of Canada that are most significant for their unique biological diversity are also those areas most disturbed by urbanization, industrialization, agriculture, and forestry. It is in these regions that we most desperately need habitat preservation. In some cases there is very little indigenous vegetation left, and it is, therefore, all the more important to preserve what remains."

These poignant words from the introduction set the stage for what is probably a landmark publication on the rare vascular plants of Canada. Checklists of rare plants have been published for most Canadian jurisdictions over the past 13 years. This period coincides with a marked increase in the literature on rare plants in Canada. The importance of conserving rare species is no longer questioned. Rare plants are now beginning to be considered in land planning and management. Some parks and ecological reserves have been established to preserve the habitat of certain rare species, and management programs are being instituted to ensure that rare species are not placed at risk. Regional checklists are important because plants are a provincial responsibility, and if legislation is to be enacted to protect rare plants and their habitats, it will have to originate with the provinces. As a result of the steadily increasing data base on rare plants, the authors felt that it was time to compile a national list of rare vascular plants.

The purpose of this list is to promote an awareness of rare plants in Canada's flora. The introductory section explains the format of the list and outlines the criteria used to include a given taxon on the national list. Invariably, some subjectivity creeps into the process of assessing rarity, especially if information on population size is unavailable or scanty, so the main criterion used for the inclusion of a taxon on the list was its occurrence in a small geographical area, based on the most recent literature and personal communications. Included in the national list are all native taxa that are rare in each of the provinces and/or territories in which they occur. An extensive list of references precedes the list of the taxa. The taxa are listed alphabetically by scientific name. In some cases, synonyms are included in parentheses following the accepted name if this is necessary to find the taxon in the cited references. The family name is given next, followed by a list of references documenting the rarity of the taxon in the various jurisdictions. If the taxon is an endemic (small geographical range) this is indicated next. The Nature Conservancy rank follows, then the Canadian priority in terms of its vulnerability (both on a scale of 1-5), and finally the COSEWIC status if a report has been done on the taxon.

Following the list of taxa are four appendices. Appendix i lists rare Canadian plants in alphabetical order by family; Appendix ii is an alphabetical list of Canadian endemics; Appendix iii includes alphabetical lists of rare plants for each of the provinces, territories, and districts; and Appendix iv where, for each Canadian priority rating, an alphabetical list of rare taxa is presented. Distribution maps follow the appendices.

1009 native taxa are recognized in the list as rare. This is about 25-30% of the Canadian flora. The greatest number of rare plants occur in B.C. and Ontario, the most floristically diverse of the provinces, containing many habitats, and hence many plants with a limited distribution in Canada.

The list represents a synthesis of much information and many years of painstaking work. The authors are to be commended for the job they have done in pulling together a list of the rare vascular plants in Canada. I particularly liked the format chosen. If you are only interested in a particular aspect of rare plants (say provincial lists), there are enough different categories, including the appendices, to enable you to find just the information you want without having to dig through the entire list.

As I am most familiar with the Alberta situation, the following comments come from this perspective. The list of references is impressive, and it is a good thing that it is. Readers more familiar with standard references such as The Flora of Canada (Scoggan 1978, 1979) or the Flora of Alberta (Moss 1983), and not up on the most recent monographs and revisions, will not recognize a number of the scientific names listed. Scientific nomenclature follows a revised version of Kartesz (1980), A Synonymized Checklist of the Vascular Flora of the United States, Canada, and Greenland, except in a few cases. These should have been noted specifically in the list. I do not know how familiar most readers will be with the Kartesz' list, but it is not something I refer to daily. Readers familiar with Scoggan or Moss will be shocked to discover *Polygonum erectum* listed as a rare species. Only by consulting the cited reference will the confusion on this one be cleard up. The choice of taxonomy will, at times, be confusing to the uninitiated, and this is one of the few problems I see with the list. Rare species may go unrecognized by amateurs using only a local flora.

No publication is perfect, although this one appears to have been well edited. I did pick up three omissions on the distribution maps. There should be a dot for Alberta on the maps of *Carex scopulorum* and *Draba ventosa,* and a dot for B.C. on the map of *Swertoa perennis.*

If the authors' intent was to promote an awareness of rare plants in Canada's flora and the need for the conservation of natural habitats, then I think they have succeeded. I would heartily recommend this publication as a standard reference for anyone interested in rare plants. It presents much relevant information. Unfortunately, it is only available by prepaid order from the Direct Mail Section, Canadian Museum of Nature, P.O. Box 3443, Station D, Ottawa, Ontario K1P 6P4.

J. Derek Johnson

* * * * * * *

The Wonder of Yoho

a trail guide by Don Beers
Rocky Mountain Books, Calgary, 1989.
$15.95.

Photographer and author Don Beers, the credits claim, has spent over 50 years wandering in this, his favorite corner of the Rockies. And, his knowledge and experience shine through! The Wonder of Yoho is packed full of great stories, bits of interpretive information on the park's natural and human history, and beautiful colour and b/w photography.

It was interesting to compare his write-ups with those of Patton & Robinson in The Canadian Rockies Trail Guide, the commonly-accepted 'bible' for mountain national park hikers. The general directions and distances in both are consistent. Patton & Robinson have more concise directions, but Beers' book stands out because of its more detailed descriptions. For the Hamilton Lake hike, along with many other notes of interest, Beers writes: "W.J. Phillips has a painting of Hamilton Lake on page 90 of his book..." "Look for mountain goats and lovely white mountain lady's slipper orchids growing near Hamilton Falls in mid-July..."

One of my favorite stories from the book concerns the Spiral Tunnels: apparently Norman Black, a railway worker, was transferred from a (now-abandoned) siding called Yoho, into Field. He transferred his piano down the big hill "on a small flatcar and played it as he coasted through the Spiral Tunnels. A track walker, hearing the sounds, became so alarmed that he rushed to the phone to warn there were 'ghosts in the hole'".

Stories like this make the book essential for anyone considering spending time in this beautiful park. They bring it to life. Unfortunately, they also make the book a bit too big to actually bring along on the trail as a trail guide. Read it at home, in the car on the way to the trailhead, or photocopy the trail write-up you're interested in (if the copyright police aren't watching) and bring the copy along on the hike with you.

Don Beers has an occasionally obtuse turn-of-phrase, such as "... have completed the fertilization process which flowers perform by Mid-August, and very few blooms are still observable after this date." There are also a few typos/spelling mistakes but these are so infrequent as to not detract from the quality of the book at all.

This is another winner from Rocky Mountain Books of Calgary, and is Beers' second for them. The other was The Magic of Lake O'Hara.

Highly recommended!

Jim Robertson

Inglewood Bird Sanctuary - A Place for all Seasons

Dave Elphinstone, Rocky Mountain Books 1990, 128 pp. $12.95 paperback.

Dave Elphinstone was a naturalist/ ranger at Inglewood Bird Sanctuary, employed by the city of Calgary from 1989 until recently. In 1988 as part of the summer staff, he was instrumental in developing their volunteer steward program. Now over 160 people, patrol the sanctuary and record sightings.

This tie with Inglewood has given Dave a special attachement and love for the sanctuary which he has translated into this attractive paperback book. The first part has a preface, then a brief description of facilities, services, environmental education programs, and the physical setting. The major part of the book deals with the history of Inglewood, the habitats, and a section devoted to the changes occuring during the seasons. Finally a reference section completes the book.

The history section begins with Inglewoods first resident, Col. James Walker, who came west as superintendent of the NWMP, and settled in Calgary. The designation of Inglewood as a federal migratory bird sanctuary was in 1929 under the initiative of Col. Walker's son, Selby.

In 1953 the Sanctuary was sold to Ed Jeffries who leased it to the Alberta Fish and Game Association, who used the Walker house as an office until 1965.

The Sanctuary was purchased by the City of Calgary in 1970 after recommendations by some University of Calgary professors and members of the Calgary Field Naturalists' Society (then called the Calgary Bird Club). It finally details the last two decades efforts at improving habitat and the development of environmental education programs.

The habitat section is broken up into aquatic, riverine forest, willow, shrub, and disturbed areas with an attractive photo of each. The seasons section at 59 pages is the real core of the book. It leads the reader through what to expect from the early spring arrival of the Canada Geese to the winter scenes of wintering Mallards. Natural history outside of birds is not neglected with plants and mammals mentioned at regular intervals. The book is made more attractive by the regular use of photographs, about two-thirds in color, depicting historical aspects, habitat and species present. Canada Geese are well represented with one dramatic picture of a young gosling just jumping out of a platform nest. The seasons section is broken up by ''boxes'' on separate species, natural history features, or unique events. The most memorable of these was when Dave and a group of grade one students observed a Goshawk dive at and capture a Mallard right in front of them.

A chapter on the future of Inglewood suggests that major efforts will be made in managing education and preservation activities as increased envirnmental awareness increases the publics interest in areas such as Inglewood.

A reference section including check lists on birds, plants, fish, amphibians and reptiles, mammals, and butterflies completes the book.

A map of the sanctuary is included inside the front and back covers showing physical and natural features. Slightly more detail may have been desirable as some features mentioned in the text are not identified on the map.

This book is a good read for anyone interested in the natural or the human history of an area like the Inglewood Bird Sancturary.

Don Stiles

Recent Publications on Alberta Natural History

Compiled by David M. Ealey

Natural History of Alberta

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The Federation of Alberta Naturalists is composed of natural history clubs from across the province. The aims of the Federation are:

(a) To encourage among all Albertans, by all means possible, an increase in their knowledge of natural history and understanding of ecological processes;
(b) To promote an increase in the exchange of information and views between natural history clubs and societies in Alberta;
(c) To foster and assist in the formation of additional natural history clubs and societies in Alberta;
(d) To promote the establishment of natural areas and nature reserves, to conserve and protect species, communities or other features of interest;
(e) To organize, or coordinate, symposia, conferences, field meetings, nature camps, research, and other activities whether of a similar or dissimilar nature;
(f) To provide the naturalists of Alberta with a forum in which questions relating to the conservation of the natural environment may be discussed so that united positions can be developed on them, and to provide the means of translating these positions into appropriate actions.

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Calgary, AB T2V 4H2.
May Species Count for Birds and Mammals, July 15,
F.A.N., Box 1472, Edmonton, AB T5J 2N5.
May Species Count-Plants, July 15,
J. Derek Johnson, Northern Forestry Centre,
5320 - 122 St., Edmonton, AB T6H 3S5.

Compiler cooperation is greatly appreciated.

President's Page

This year's 20th Annual Canadian Nature Federation (CNF) Conference with the theme "Flowing Through Alberta", sponsored by the Red Deer River Naturalists was held July 4 to 7 at Red Deer.

The main thanks go to chairperson Dorothy Dickson and registrar Jennifer O'Brien along with an organizing committee of about 25 people. They also had good local support from organizations like the Kerry Wood Nature Centre and Ellis Bird Farm.

Speakers on Friday and Saturday a.m. and p.m. were uniformly good. Topics were roughly divided into rivers, mountains, parklands and prairies. Speakers were always interesting, whether on general topics such as the above, or on specific species such as grizzly bear, Richardson's ground squirrel, pronghorn, burrowing Owl, ferruginous hawk or prairie falcons. Two local topics of interest were Red Deer area fossils, and the biological control of mosquitoes. The latter had three tables with trays of mosquito predators and a biologist technician at each table to explain.

The social was not neglected with a Friday evening wine and cheese reception, a Saturday evening barbecue, and a Sunday evening banquet. The barbecue was followed by a presentation with the Precipice Theatre of Banff who gave an "irreverent but environmentally stimulating" performance. The banquet was followed by a speech by Red Deer M.P., Doug Fee plus a presentation of the CNF Douglas Pimlott award to Alberta's own Cam and Joy Finlay for their environmental conservation and education efforts over the last two decades.

A display area with displays from Alberta's government and non-governmental environmental organizations was available when registrants were not attending sessions or the reception. The most captivating of these was that of the Medicine River Wildlife Rehabilitation Centre which had a live kestrel to attract an audience. This area also included a bookstore run by the Kerry Wood Nature Centre Association.

Finally, there was a Sunday morning buffet breakfast followed by the CNF Annual General Meeting. The breakfast celebrated the 20th anniversary of CNF and the 85th birthday of the Red Deer River Naturalists (up to 1976 it was called the Alberta Natural History Society). CNF has had to curtail mailings from their bookstore due to losses. Two resolutions were passed: 1. Supporting no development at James Bay unless it is demonstrated that there will be no serious environmental damage and 2. Urging the Government of Alberta to provide protection for the whole Rumsey aspen parkland block. The Rumsey resolution follows.

Next year's Canadian Nature Federation Conference is in Quebec City, Aug 13-16, 1992. These conferences are an excellent way to discover Canada "nature-wise". Information will be published in the magazine Nature Canada sometime next year. You can pick it up at your local newstand if you are not already a subscriber.

Don Stiles, President of F.A.N.

RDRN President Dorothy Dickson chats with MP Doug Fee.

Issues

Rumsey Aspen Parkland Wildland Area Resolution

Whereas the Rumsey Aspen Parkland Wildland areas is the most significant remaining block of aspen parkland that is large enough to provide a self-sustaining, representative sample of typical parkland ecosystems; and

Whereas the irreplaceable conservation values of the area are being eroded due to inappropriate industrial development and poorly controlled public access;

Be it therefore resolved that the Canadian Nature Federation urge the Government of Alberta to act quickly to provide protection for the whole Rumsey aspen parkland block to ensure that it remains capable of supporting a viable parkland ecosystem and retains the internationally significant wildland conservation values natural to it.

Be it further resolved that the above protection include: discontinuing the sale or renewal of oil and gas leases in the block; expediting extraction of resources from existing well sites and reclaiming disturbed land, including roads; identification of sensitive natural and archaeological features which require protection from human interference and grazing cattle; and provisions to limit public use of the area to non-mechanized forms of recreation.

Grateful Thanks

Thanks to Imperial Oil Limited's Volunteer Involvement Program for ESSO annuitants, Dick and Pat Clayton were able to obtain a grant to assit the Federation of Alberta Naturalists' Alberta Bird Atlas work.

These V.I.P. grants are ESSO's way of recognizing the work that volunteers undertake for a wide variety of charitable purposes. Naturally we at the Federation were delighted that ESSO felt that the Alberta Bird Atlas was a most worthy project and sent us a $1,000/cheque with which to purchase a software package (dBase IV) and a mega processor for the computer. Both have been installed by another F.A.N. volunteer.

The entire Atlas Project is now in its final phase; the raw data from this, the fifth and final summer's field work, is being entered and the maps and reports are starting to be prepared. The entries are being checked both for accuracy and reliability, with volunteers again going over all their sighting of rare or endangered birds. Some of the less glamorous but equally important species reports are now being written. All this is working towards production of a book for which the field work and background administration was undertaken by volunteers. We will have the entire project ready for printing in the fall of 1992.

The Federation wishes to thank ESSO's Imperial Oil Limited Corporate Contirbutions for assisting us in this project. Volunteer enthusiasm and caring is greatly enhanced when the necessary tools to do a good job are so willingly donated.

Interview With Alberta Carnivore Manager John Gunson

Dick Dekker

On 9 October 1990, WolfNews editor Dick Dekker met with John Gunson in his Edmonton Office of the Alberta Wildlife Division. Biologist Gunson is the author of the Draft Management Plan for Wolves that was recommended for implementation by the Wildlife Advisory Committee, made up of representatives of a wide range of groups interested in wildlife. The plan includes provisions for possible government wolf control on public lands to enhance elk, moose and caribou populations. Dick Dekker's questions are printed in italics.

Much of the heat centred on wolves and wolf control in Alberta in recent years was generated by the release of the Caribou Restoration Plan in 1986 that called for a 70% reduction of wolf numbers for 3-4 years. The plan was aimed at reversing the decline of woodland caribou in the Willmore region where population estimates have plummeted from about 1200 in the 1960s to about 300 in the 1980s. Would you agree that a major flaw of this plan is the fact that the comparison is false; the high caribou numbers of the 1960s were "unnaturally" high, an artifact of 15 years of wolf poisoning in the area.

JG: I am not so sure that the caribou population in the Willmore during the 1960s was unnaturally high; I would suspect that their numbers in the early 1940s were just as high or higher. The real question is: how important was the role played by wolf predation in the caribou decline of the 1970s and '80s.

This brings me to the second major flaw of the Caribou Plan. The researchers found very little direct evidence of wolf predation on caribou and they presented a report that was based on some assumptions and perhaps shoddy research?

JG: I don't think so. Some of that kind of information is very hard to get in the bush. However, to get back to the first part of your question; I agree absolutely that one of the key issues relating to wolf management in Alberta is the wolf/caribou relationship, especially the caribou north of Jasper, the only migratory woodland-mountain caribou we have in the province. And because they are threatened, there is a great deal of concern about them. And that relates to the question of how important wolf predation is on this caribou herd. I'll be the first to admit, and so will our researchers, that the original information that went into the report, and that supported the recommendation for wolf control, was based on a very preliminary and a very small sample of dead caribou. And the researchers were uncertain as to whether wolves had killed these caribou. However, it's only fair to point out that we have already done the experiment! We have already removed the wolves in Willmore, in the early 1950s and 1960s, as you well know. And what happened? The caribou increased! So, I find it a little bit academic; here we have the caribou down to about 200-300...

What you are saying is: wolf control worked in the 1950s. So it should work now?

JG: Absolutely.

Let's talk about elk. The issue of elk management and wolf predation on elk always centres on the Nordegg region along the boundaries of Jasper National Park. But your department can't even manage elk in areas where there are no wolves, such as the upper Bow Valley, the Kootenay Plains *and even at Cooking Lake, east of Edmonton. If I were an elk manager I would make sure that these areas, that contain prime elk habitats, teem with wildlife. But they don't.*

JG: First of all I take exception to your argument that we can't even manage elk in areas where there are no wolves. As a matter of fact, south of the Bow River, where we have few wolves, but where we also have much better habitat, we have substantial elk populations, to the point where we had to increase hunter harvest. But north of the Bow, and north of the Red Deer River, elk populations are now much reduced from what we had in the 1950s and '60s. And there is no question concerning the research that was done on wolves and elk in the Nordegg region; wolf predation was an important factor in the declines. Not the only cause; hunting was important too, and aboriginal hunting.

I am aware of the fact that there is excellent elk habitat in the southwest region of the province. Most of it seems to be on private ranch land.

JG: Yes, much of it is ranch land, but not all private. Much of it is leased public land

.....where ranchers control access and limit hunting.

JG: I am not saying that the problem with elk north of the Bow River is primarily related to wolves. They have declined because of a combination of limitations. (1) Hunting; in the 1960s we undoubtedly took too many antlerless elk, females and calves. (2) The build-up of the wolf population in the late 1960s and 1970s. (3) Increasing bear populations. (4) And of course, on top of all that, the problem of forest succession that has reduced forage for elk. All of these limitations have combined to produce a very reduced elk population. But, as you know, what happens at reduced prey densities? Natural predation becomes so important, wolf predation and bear predation. What do managers do in that situation?

So, there are very good reasons why the elk populations were very high in the 1960s. People who dream of those days have to realize that you can't go back. Times have changed!

JG: I have heard that before. Some of my colleagues argue that ungulate numbers in the 1960s were unnaturally high, as a result of various things, not just wolf control, but also changed forestry methods. During the 1950s and 1960s across Canada there were thousands of small lumber companies that produced small clearings and enhanced wildlife habitat. I don't buy the argument that we will never again have the high population densities of the 1960s, and that we have to be satisfied with low densities of ungulates and low densities of predators. As a wildlife manager, I would like to manage the environment to produce wildlife. I think we could have populations that would be even higher than the 1960s, and we could have a full complement of predators to go with them.

To come back to some specific locations that I mentioned, such as the Kootenay Plains and the upper Bow Valley. Is there a reason why elk numbers in these prime winter habitats are as low as they are at present?

JG: You know the answer to that question as well as I do. And part of the answer obviously involves Treaty Indian hunting. Particularly the Kootenay Plains, and some of the Bow Valley, are very intensively used by the aboriginal people.

Do you see a possibility for a better relationship between wildlife managers and native people?

JG: It is beyond my jurisdictional responsibilities. However, we do have native liaison officers in the Division and we do attempt to get them interested in wildlife management. It is a slow process, but it is

Wolfish dialogue........... (Photo: Janet Lidle)

ongoing. My own personal view, and we have to divorce that from the government's view, is that aboriginal hunting is one of the key issues in wildlife management in Canada.

As you know, the Alberta Fish and Game Association began a program of paying trappers to take more wolves in so-called target areas. Are you monitoring their activities?

JG: Of course. As a government agency we advised AFGA that their predator management program would probably not be effective in limiting the number of wolves. And primarily because of economics. An incentive of $100 is not enough to make up for low pelt prices and the tremendous effort needed to capture a wolf.

On what did you base your statement, made earlier, that wolves west of Rocky Mountain House have been hit hard by trappers?

JG: We know what their harvest is. One of our strategies to encourage the taking of wolves in the Rocky Mountain House area is to provide complimentary snares, and to provide road-killed animal carcasses on a year-round basis. These carcasses are used as pre-baits in localized areas. Based on trapper-reports, we know that trappers have been taking fairly large numbers of wolves in the RMH region. For instance, the Blackstone pack that used to number up to 17 wolves in 1986 is down to 3 or 4.

About the Alberta Wolf Management Plan; why has it not been possible for citizens of this province to obtain copies of the document? Why all the secrecy?

JG: I wouldn't call it secrecy. It's no different from other management plans. For example, I started to work on the Elk Plan in 1986. It's still not an approved document at this time. It is not a secret at all. The Wolf Plan, like the Elk Plan or the Grizzly Plan, has to end up with a cover on it before it becomes a public document. Then it is available to anyone who wants it. But I must admit it is a slow process. I prepared the first draft of the Wolf Plan in 1987.

I understand you made some recent changes to it that include a provision for public hearings?

JG: Where we have identified an ungulate problem and a wolf component of that problem, the plan stipulates that, if we are going to restore or enhance that ungulate population, there has to be a regional operational plan, which has to show good evidence of the effect of wolf predation. It should also identify good ungulate data. And if wolf reductions are recommended in that regional plan, then, not only will the wolf reduction be a last resort, but there will be a full public review process initiated.

In February 1990, I organized a public forum on wolf management in the province. What was the official reaction of your department?

JG: There is no question that you have to have a public discussion on controversial programs. You were successful in putting 500-600 people into the Provincial Museum at Edmonton to discuss wolves and wolf control. Nothing but positive results will come out of that. I want to remind you, though, of the other side of the coin, so to speak. You had there primarily, not totally, an urban audience. To me, as a country person, the wolf issue should be primarily a rural issue.

Is there anything we haven't touched upon and that you would like to bring up?

JG: First of all, I think there has been far too much emphasis on whether or not we are going to use wolf control as a method to restore a hoofed mammal population. The Caribou Restoration Plan is a good example. There were many recommendations mentioned in the plan, such as trying to get Natives to stop harvesting caribou; trying to educate hunters; reducing vehicle collisions; working with logging companies to ensure that there will be some habitat left in the future. But the only thing that got media attention was the wolf component. Secondly, we have great wildlife habitat in this province, the boreal poplar forests, on productive soils, but we have ended up with low ungulate populations (and low predator populations), that are caught in the "predator pit." And it seems to me, if we are going to make an argument about restoring the large

Elk management in western Alberta - a clash of opinion....... (Photo: Dick Dekker) mammals of northern Alberta, wolf reduction will have to be part of that restoration.

Recently, the World Wildlife Fund has come up with a plan for the creation of large Carnivore Conservation Areas. One of them is centred on the Rocky Mountain Parks, straddling the B.C./Alberta provincial boundary. These areas emphasize the need for protection of wolves, bears and cougars. Have you been involved with the negotiations that are going on?

JG: I have been involved, at a certain level, with the people who have prepared the strategy for establishing the Rocky Mountain Carnivore Conservation Area. I agree with the conclusion reached by Dr. Steve Herrero that the emphasis will have to be on the formation of a super-agency that includes representatives of the provinces and the parks...There are well-established jurisdictions there now. For Alberta, the proposed RMCC area includes key areas for elk and caribou management. Personally, and I can speak on behalf of the Wildlife Branch, the Branch would only be too happy to be part of this super-agency, but I would like to see it involved with all the resources in the area, the animals and the plants, and not just large carnivores.

Dick Dekker's final remarks:

Regarding the Willmore caribou, you suspected that the population was at least as high in the 1940s as the 1960s. Based on the scarce information available, the Caribou Restoration Plan implies that declines began in the 1930s, and by 1947 "the mountainous regions north of Jasper National Park where caribou had been plentiful were almost devoid of this animal...the population recovered to about 1200 during the 1960s, after predator controls and limited hunting."

As far as elk are concerned, it is beyond question that elk populations were "unnaturally" high in the 1960s. In Jasper Park there were too many for available winter range. I was there in the 1960s and I can attest to the overgrazed condition of the slopes in the Athabasca Valley, and the total destruction of poplar browse in the Snake Indian Valley. Elk were competing for winter forage with bighorn sheep that were on the verge of a massive die-off due to malnutrition.

I challenge your notion that you could bring up Alberta's hoofed mammal population to levels "even higher than the 1960s." You propose to do that through habitat improvements, control of hunting and control of predation. Aren't you afraid to start another cycle of boom and bust, similar to the disastrous scenario we have seen in 1950-1980?

John Gunson's last words

JG: I was not referring just to Jasper, where recolonization by elk and lack of human harvest helped to create an unnaturally high population. I was referring to that huge, potentially diverse, large mammal system that is northern Alberta. With intensive wildlife management, a "boom and bust" situation need not arise. Wildlife managers have the knowledge and the tools to modify habitat, to control harvest and to manipulate ungulate and predator populations. Alberta could support a great wildlife industry, including both consumptive and non-consumptive components. Aboriginal people as well as other Albertans would benefit tremendously under a regime of large mammal restoration. I believe that most northern Albertans would support this philosophy.

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Author's Address:
3819 - 112A Street. Edmonton, Alberta T6J 1K4

The May Species Count - Plants in Flower (1976-90)

J. Derek Johnson

In 1974 an attempt was made by the Federation of Alberta Naturalists to organize a province-wide Species Count Day (Goulden 1974), one aspect of which was the recording of all plants in flower in a 24-hour period on a given day in May. This initial effort failed because of a lack of interest. However, a successful attempt was made to revive the count in 1976 (Weseloh 1976). Since then the count has become an annual event of the Federation. The count is traditionally held on the last full weekend of May and generally follows the rules of the American Birding Association (1975) with the exceptions that, for the plant count, solo efforts are not discouraged and there is no geographic restriction other than the province of Alberta. Results from the first two counts were compiled by Julie Hrapko at the Provincial Museum of Alberta. Since 1978 J.D. Johnson has been the provincial compiler. Results have been published annually in the Alberta Naturalist. Table 1 presents a summary of the results of the May Count from 1976-90 for the most frequently reporting areas. Locations of May plant counts in Alberta are shown in Figure 1.

Reports of the results of the May Count have included subjective assessments of the number of days the season was advanced or retarded from average. These assessments were based on whether or not certain species were in flower in a given area, relying on past records and personal experience. A more accurate way to determine whether the season was early or late is to compute degree-days for the various count areas. A ''degree-day'' is defined as a measure of the departure of temperature for a day from some reference temperature (Atmospheric Environment Service 1982). Degree-days are expressed in degrees of temperature. Most temperate woody species and some perennial herbs flower in response to temperature, which usually acts through cumulative heat sums above some threshold level (Rathcke and Lacey 1985). A mean daily temperature of 5° C is often used as a reference temperature in plant studies, as it is considered by some to be the minimum temperature required to break winter dormacy (Moss 1960). Degree-day computations based on a mean daily temperature of 5° C are referred to as ''growing degree-days.'' To calculate growing degree-days for a single day, the maximum and minimum temperatures are added and then divided by two to obtain the daily mean temperature. The 5° C reference temperature is then subtracted from the mean to give a growing degree-day value. If the mean daily temperature is at or below 5° C, the degree-day value is O. Degree-days are computed by day and totalled for whatever period you are interested in. (The sum to the end of May is used to evaluate the results from the May Count.) Growing degree-days are often used for scheduling planting times and for predicting various plant growth stages. Cumulative growing degree-days can be used to forecast harvesting dates.

Comparing cumulative growing degree-day calculations to the end of May for the years 1973-89 to the 30-year average (1951-80) (Atmospheric Environment Service 1982) reveals that the subjective assessments of the earliness or lateness of the season were not always accurate.

Legend for Figure 1

1 Whiskey Gap
2 Cypress Hills Provincial Park
3 Lethbridge
4 Medicine Hat
5 Calgary
6 Yamnuska
7 Banff/Canmore
8 Dry Island Buffalo Jump
9 Red Deer
10 Buffalo Lake
11 Edmonton
12 Entwistle
13 Grande Prairie
14 Fort McMurray

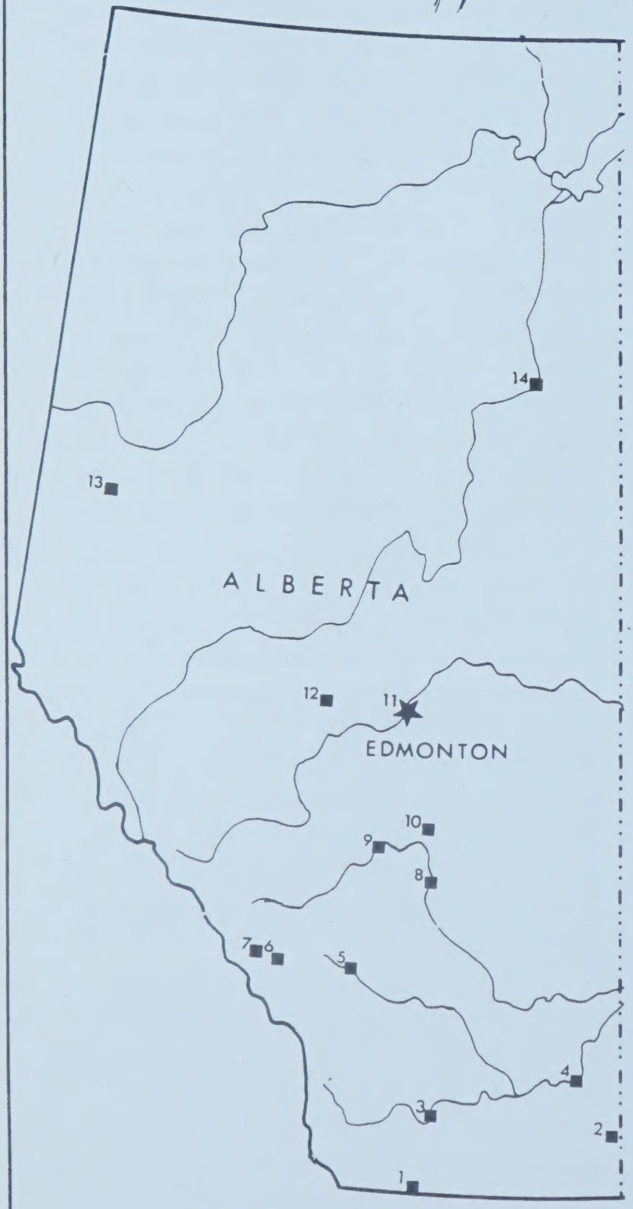

Figure 1. Locations of May plant counts in Alberta.

However, there was no consistent error to either the early or late side. Table 2 presents the earliness or lateness of spring from 1973-89, based on growing degree-day calculations, for the eight best reporting areas with nearby weather stations (Lethbridge, Calgary, Banff, Red Deer, Stettler, Edmonton, Grande Prairie, and Ft. McMurray). Considering the province as a whole, the years 1976, 77, 80, 81, 85, 86, 87, and 88 had early springs; 1974, 75, 79, and 82 had late springs; and 1973, 78, 83, 84, and 89 were about average. The earliest spring occurred in 1980, the latest in 1974. There has been a trend toward earlier springs over the past decade. In the period from 1973-89, early springs outnumbered late springs by a margin of 2:1. However, in the period from 1980-89 the margin was 6:1.

Johnson (1982) commented that the number of species reported in flower on the May Count is as much correlated with the weather on the count weekend, the number of people participating, and the geographic coverage within the province, as it is with general earliness or lateness of the spring. While this is indeed true, it is less pronounced when reference is made to cumulative growing degree-day calculations. Calculating cumulative growing degree-days above 5° C to the end of May for the major count areas has helped to explain certain anomalies in the count results as to why certain species are reported in flower in one area and not in another in any given year, or as to why a certain species is or is not reported in flower at all. For example, unexpectedly high numbers of species were reported in flower in Ft. McMurray in 1977 (105) and 1980 (103). These totals were especially surprising considering the general results from the rest of the province where totals were lower. Computation of cumulative growing degree-days for these years quickly provided an explanation that was not

Table 1. May Species Count - Plants in Flower. Fifteen Year Summary (1976-90).

YEAR	LOCATION[1] WGAP	CYPR	MEDI	LETH	CALG	YAMN	BANF	DRYI	REDD	BUFF	EDMO	ENTW	GRPR	FTMC	Total # Species	Total # Participants
1976				55	66	92	48		41	53	59			84	254	
1977				68	50	118	44	58	29	82			38	105	288	52
1978				46	72	83	72	61		115	57		49	89	265	75
1979					36	55	55			54	27	27	29	51	164	51
1980				59	58	98	77		53	57	79	47	61	103	276	42
1981				52	118	115	65		60	58	117	73	88	90	308	68
1982				38	21	51	42			55	65	52	35	63	192	34
1983		45			77	79	70	35	73	59	112	55	51	46	244	77
1984		49			58	63	56		30	46	96	51	36	51	220	46
1985		58	42	84	75	76	76	58	43	57	83	64	53	66	291	38
1986	86	46	37	72	38	60	59	50	44	52	98	52	24		268	62
1987	163	81		46	67	119	129	57	42	69	155	61	42	79	383	71
1988	154	79	38		95	117	101	71	67	79	174	74	62	78	437	100
1989	102	62	42	36	63	54	67		35	35	123	44	22	59	305	126
1990	105	62	48	59	61	63	55		41	31	142	70	60	64	317	132
Ave.	122	60	41	56	64	83	68	56	46	60	99	56	46	73	281	70

WGAP - Whiskey Gap
CYPR - Cypress Hills
MEDI - Medicine Hat
LETH - Lethbridge
CALG - Calgary
YAMN - Yamnuska
BANF - Banff/Canmore

DRYI - Dry Island Buffalo Jump
REDD - Red Deer
BUFF - Buffalo Lake
EDMO - Edmonton
ENTW - Entwistle
GRPR - Grande Prairie
FTMC - Fort McMurray

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[1] Locations of May plant counts in Alberta are shown in Figure 1.

Table 2. Number of days ahead of, or behind, 30-year average (1951-80) cumulative growing degree-days (above 5^{0} C) to the end of May.[1]

YEAR	LOCATION LETH	CALG	BANF	REDD	STET	EDMO	GRPR	FTMC	Provincial Average[2]
1973	0	0	0	0	0	0	0	+6	0
1974	-5	-16	-13	-12	-14	-8	-8	-6	-10
1975	-10	-10	-5	-10	-11	-5	0	0	-6
1976	+13	+14	+7	+7	+8	+11	+7	+10	+10
1977	+17	+12	+8	+9	+12	+17	+10	+19	+13
1978	0	0	0	0	0	0	0	0	0
1979	-4	-5	0	-8	-11	-9	-8	-9	-7
1980	+17	+21	+25	+19	+17	+20	+18	+29	+21
1981	+9	+6	0	+5	+5	+6	+7	+7	+6
1982	-9	-8	-5	-4	-5	0	-7	0	-5
1983	0	0	0	0	0	0	0	-7	0
1984	+7	0	-10	-4	-6	0	-6	0	0
1985	+12	+10	+9	0	0	+8	0	+9	+6
1986	+7	+7	0	0	0	+4	0	+4	+4
1987	+24	+23	+21	+8	+14	+8	+6	+7	+14
1988	+18	+15	+9	+9	+8	+10	+10	+4	+10
1989	0	0	0	0	-4	0	+4	0	0

LETH - Lethbridge
CALG - Calgary
BANF - Banff
REDD - Red Deer

STET - Stettler
EDMO - Edmonton
GRPR - Grande Prairie
FTMC - Fort McMurray

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[1] A difference of 3 days on either side of average is not significant (0).

[2] Based on the 8 best reporting areas.

immediately evident from the flowering records. Spring was 19 and 29 days early, respectively, in those years at Ft. McMurray, and this was earlier than at any other location in the province, and the earliest two springs that Ft. McMurray has had in the past 17 years. Growing degree-days clearly give a more accurate representation of the earliness or lateness of the spring than do flowering observations alone and help to better explain the count results in any given area.

The use of growing degree-day calculations to determine the earliness or lateness of the season is only feasible if local temperature data are available on a year-round basis close to where flowering observations are made. As this is often not the case, flowering dates provide an alternative, being easily obtained and giving an "instant" reading of seasonal progress. Unlike the phenology study of Bird (1973-82), where species were followed throughout the entire growing season, the results from the May Count represent only a few dates from each year. Therefore, care must be taken in selecting species from the May Count that are useful for predictive purposes. The approach that is tried here is to use the number of so-called "sensitive" species in flower in a given area on the May Count weekend as an indication of the earliness or lateness of the season. To be useful for such a test the species chosen must be easily identified by the average observer, have a wide distribution, exhibit a reasonably consistent flowering period, and begin to flower at the end of May or beginning of June in an average year. On a provincial basis, six species, Star-flowered Solomon's-seal *(Smilacina stellata)*, Choke Cherry *(Prunus virginiana)*, Wolf Willow *(Elaeagnus commutata)*, Yellow Peavine *(Lathyrus ochroleucus)*, Northern Bedstraw *(Galium boreale)*, and Common Yarrow *(Achillea millefolium)*, have proven useful in this regard as they meet the above criteria. Results from Bird's phenology study (1973-82) indicate that the first three of these species should be in flower by the May Count weekend in an average year. Two or less, or four or more, of these species reported in flower in a given area should indicate a later or earlier spring, respectively.

Generalized comparisons made on a provincial basis can be rather crude and tend to obscure differences between individual areas in any given year. Greater precision can be achieved if one area is looked at over time or all areas are compared with each other in one given year. With regard to the former, Calgary and Edmonton are good areas to work with because they have records covering a relatively long period of time (17 years) and good area coverage. Figure 2 shows the status of spring at the end of May in Calgary (Fig. 2a) and Edmonton (Fig. 2b) from 1973-89, plotting the annual deviation of cumulative growing degree-days from the 30-year average (1951-80) and the deviation from normal based on the number of sensitive species in flower. The vertical scale represents two different values so the heights of the growing degree-day and species bars in relation to each other has no specific meaning. Taking growing degree-day values to the end of May for each of the years 1973-89 and subtracting the 30-year average gives a representation of the true earliness or lateness of the season. In Figure 2, the O, or "normal", line for the sensitive species is derived using three species in flower as the average condition. The deviation from normal is determined by adding up the total number of the six sensitive species reported in flower from the area (maximum 6) and then dividing by the average condition (3) to give a deviation from normal. Normal conditions would give a result of 1. This is the O line in Figure 2. It is the deviation from this normal condition which has been plotted. This deviation from normal gives a simple indication of the relative earliness or lateness of the season without the labour of computing growing degree-days. Flowering records for 1973-75, inclusive, were obtained from Bird's phenology study (Bird 1976).

There is good agreement between the actual earliness or lateness of spring based on the growing degree-day calculations versus the predicted earliness or lateness based on the number of sensitive species in flower in 14 of the 17 years (82% accuracy) for Calgary, the exceptions being 1978, when spring was predicted to be early on the basis of the number of sensitive species in flower, but was actually average; 1984, when spring was predicted to be late, but was actually average; and 1986, when spring was predicted to be late, but was actually early. The discrepancy in 1978 can be explained on the basis that flowering reports came from the most favourable microhabitats, i.e., the south-facing slopes of Nose Hill, rather than level ground. Lack of area coverage is part of the reason for the discrepancy in 1984, as the results include only one person's brief observations in a small area. There is also agreement in 14 of the 17 years for Edmonton, the exceptions here being 1978, when spring was predicted to be early, but was actually average; 1985, when spring was predicted to be average, but was actually early; and 1986, when spring was predicted to be late, but was actually early. The discrepancies in 1978 and 1985 are most likely related to the selectivity of areas covered in those years. The discrepancies in 1986 will be elaborated on later when the province as a whole is discussed. A similar general pattern is evident in five of the six other areas, although the discrepancies between predicted

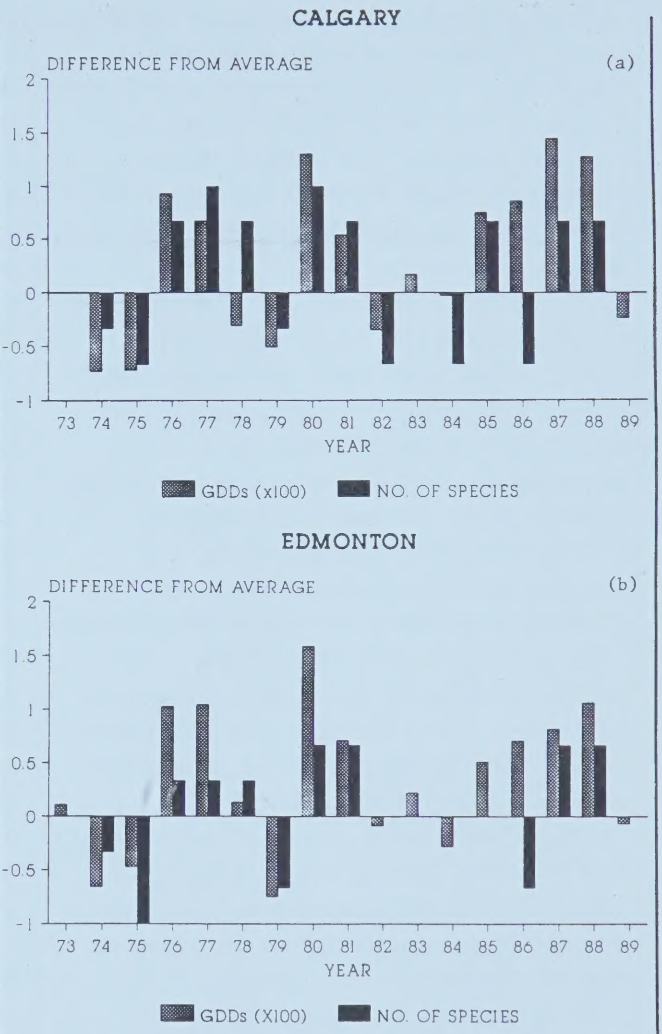

Figure 2. Status of spring in Calgary (a) and Edmonton (b) at the end of May (1973-89).

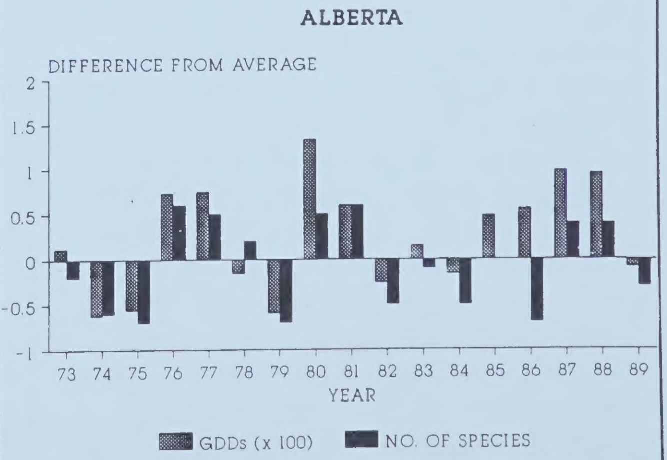

Figure 3. Status of spring in Alberta at the end of May (1973-89).

and actual conditions may occur in different years. The accuracy of the predictions ranges from 64% for Lethbridge and Grande Prairie, to 71% for Ft. McMurray, to over 80% for Red Deer and Stettler. Lower percentages occur in those locations with limited area coverage or the most years with missing data.

Unfortunately, the sensitive species test does not appear to work for Banff. Using results from Bird's phenology study (1973-82) to compute cumulative growing degree-days at the average date of first flowering for Star-flowered Solomon's-seal, the first of the six sensitive species to flower, reveals that approximately 165 cumulative growing degree-days are required to initiate flowering in this species. This cumulative growing degree-day total is not achieved by the end of May in Banff in an average year. To compound the problem, critical temperature sums tend to be higher at higher latitudes and altitudes (Reader 1975). These factors, combined with the fact that flowering reports come from highly variable topography, work against the use of sensitive species in flower as a predictive tool for determining the earliness or lateness of spring in this area.

To see if the sensitive species test is workable when applied to the province as a whole, the graphs for the eight individual areas selected have been combined together in Figure 3. The O, or average, line for growing degree-days was obtained by summing the 30-year average (1951-80) cumulative growing degree-days above 5° C to the end of May for each of the eight areas and then dividing by eight to obtain the provincial average growing degree-day value. The O line for the sensitive species was determined in a similar manner to that for the individual areas. On a provincial basis, the predictions of the earliness or lateness of the season based on the number of sensitive species in flower corresponds well to the actual growing degree-day results, with the exceptions of 1984, when spring was predicted to be late on the basis of the number of sensitive species in flower, but was actually average; 1985, when spring was predicted to be average, but was actually early; and 1986, when spring was predicted to be late, but was actually early. The absence of a report from Lethbridge in 1984 is the main reason for the discrepancy in that year. Spring was actually early in Lethbridge in 1984, compared to average or late for the rest of the province. If growing degree-days from Lethbridge are removed from the calculations, then the actual versus the predicted conditions for the rest of the province in 1984 fall into agreement. Results were spotty from southern Alberta in 1985 and spring in this part of the province was comparatively earlier than in the more northern areas. This in part explains the deviation of the predicted conditions from the actual ones. The reason for the discrepancy between the predicted and actual conditions in all reporting areas in 1986 was initially a bit of a mystery. The weather on the count weekend was good, as was the area coverage, and there were a few more participants out than usual. Spring was also marginally early over much of the province, but none of the major count areas reported many, if any, of the sensitive species in flower. However, the count in that year was held on May 24-25, almost a full week before the end of the month. Table 2 and Figures 2-4 presented in this report include growing degree-day computations to the end of the month. In 1986, the last week in May was notable for exceptionally warm temperatures, in the the high 20's in many areas. Up until that week, spring was average to marginally late in most areas. If the growing degree-day calculations are adjusted back to the dates on which the May Count was held, the discrepancy between the predicted and actual spring conditions is lessened considerably.

Comparisons have been shown for individual areas and on a provincial basis over time. How does the sensitive species model work when it comes to comparing areas to each other in any given year? Is it sensitive enough to pick up seasonal differences between areas in any given year? The answer to this is a qualified yes. Figure 4 shows the status of spring at the end of May in 1983, with the reporting areas plotted from left to right in the expected order of flowering based on degree-day calculations. 1983 was selected because it is one of the years over the history of the May Count which had the most variable spring conditions across the province. Spring was early in Banff, Red Deer, and Grande Prairie, late in Ft. McMurray, and average everywhere else. Unfortunately, no report was received from Lethbridge in that year. The predicted status of the season was determined on the basis of the flowering records submitted from these areas long before any degree-day calculations were made. The actual and predicted conditions are in agreement in six of the eight areas (75% accuracy), the exceptions being Banff and Grande Prairie. Limited area coverage is the primary reason for the discrepancy in Grande Prairie, and the problems with Banff have been stated earlier.

The number of sensitive species observed in flower, and therefore the accuracy of predictions based on this, is clearly related to the amount of area covered. Predictive accuracy would increase if additional sensitive species could be selected, and it would be even better if the species were chosen on a regional basis. For example, Brown-eyed Susan *(Gaillardia aristata)* would be a useful addition in the southern prairie areas, and Common Labrador Tea *(Ledum groenlandicum)* would be useful in the Ft. McMurray area.

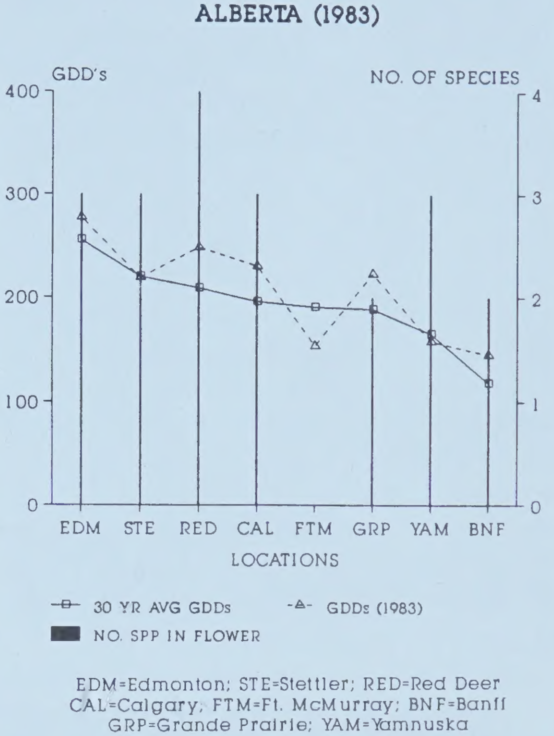

Figure 4. Status of spring in Alberta at the end of May (1983).

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Over the 15-year history of the May Count, 28 native species considered provincially rare by Packer and Bradley (1984), or nationally rare by Argus and Pryer (1990), have been observed in flower. Two other rare native species not included in the Flora of Alberta (Moss 1983), *Luzula rufescens* (Johnson 1987) and *Gentiana aquatica* (Johnson 1990), can be added to this list. In addition, 12 introduced species considered rare by Moss (1983) have been encountered on the count. Table 3 lists the rare native species encountered on the count, the location(s) from which they have been reported, and the year(s) in which they were reported. Four of these species *(Carex nebraskensis, Castilleja cusickii, Erigeron radicatus,* and *Oxytropis lagopus)* have been given a Canadian priority rating of 2 (on a

Globeflower *(Trollius albiflorus)*.
(Photo: P.S. Debnam)

Showy Locoweed *(Oxytropis splendens)*.
(Photo: J.D. Johnson)

Marsh Marigold *(Caltha palustris)*. (Photo: J.D. Johnson) scale of 1-5) in terms of their vulnerability (Argus and Pryer 1990). Most records of rare plants have been supported by specimens or photographs. About half of these species have prairie affinities, one of the most endangered spaces in the province. With the exception of Dinosaur and Cypress Hills provincial parks, none of the species in the list were found in a formally protected area. A number of these species have been found in areas some distance from those indicated in Moss (1983) or Packer and Bradley (1984). These are indicated with asterisk (*) in Table 3. The likelihood of finding some of these rare species in flower on the May Count is in part dependent on the earliness or lateness of the season, the botanical expertise of the observers, and whether or not anyone is actually out in the appropriate area doing a count. The list of rare plants is included with this report to make participants aware of the potential for finding rare species on their counts and to encourage monitoring of populations of rare plants when found.

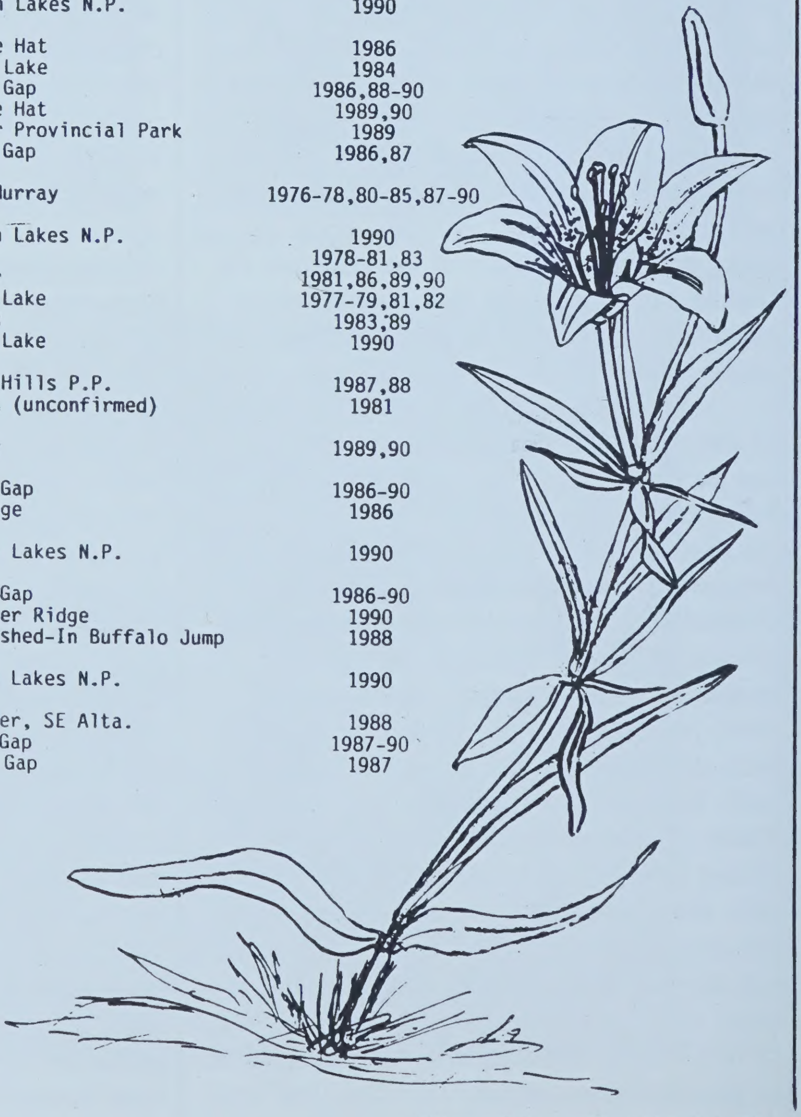
With regard to the monitoring aspect of rare plant populations, some comments can be made and a few questions asked based on the results of the May Count over the past 15 years. The original population of Fringed Milkwort *(Polygala paucifolia)* discovered in the Ft. McMurray area was destroyed when the Syncrude oil sands operation was developed. Fortunately, other populations were discovered in the area and these continue to survive. The main Buffalo Lake population of Crowfoot Violet *(Viola pedatifida)* was destroyed during roadway widening and this explains why the species has not been reported from the area since 1982. This species has also not been reported from Nose Hill in Calgary since 1983. Has it disappeared from the hill, or is it simply a case of no counts being done in the appropriate area? The Red Deer area population of Crowfoot Violet appears to be flourishing. Nevada Bulrush *(Scirpus nevadensis)* has not been reported from Buffalo Lake since 1985. Is this because of limited observation, or is it because of habitat alternation?

For many people, the greatest value of the May Count is as a social event, the chance to gain and share knowledge on plants with like-minded individuals. It also gives participants a chance to know their local areas better. From the perspective of conservation, ''to know is to care.'' The May Count also contributes to a better understanding of plants species' distributions, including range extensions and/or changes (see Bird 1979). It also documents the occurrence and distribution of rare species. Repeated observations in the same area can be a part of long-term environmental monitoring, and a measure of the effects of climate change. And last, but certainly not least for some people, the May Count provides the competition aspect as to who can find the most species in flower.

Concern has been expressed regarding the scientific validity of the results of the bird count portion of the May Species Count (Wiseley 1985; Dickson 1990). The greatest concerns center on the inconsistency of area coverage, the competence of observers, and something that nothing can be done about, the weather. The plant count also suffers from these problems, but they are probably not as restricting for the plant count as they are for the bird count. The competence of observers seems to be the factor most limiting evaluation of the plant count results. The scientific value of the count definitely increases with the number of reporting years in, and familiarity with, a given area. I do feel that the plant count is fostering a spirit of cooperation and educating participants toward a better understanding of their local natural history.

Table 3. Rare native species reported in flower on the May Count (1976-90).

SPECIES	LOCATION(S) REPORTED FROM	YEAR(S) REPORTED
Carex deflexa	Glenevis	1986
	* SE of Valleyview	1987
	* Cooking Lake (unconfirmed)	1989
Carex nebraskensis	* Milk River, SE Alta.	1988
Scirpus nevadensis	* Buffalo Lake	1979,81,82,84,85
Luzula rufescens	* SE of Valleyview	1986,87
Camassia quamash	Cardston	1990
Suaeda moquinii	Milk River, SE Alta.	1988
Aquilegia formosa	* SW of Grande Prairie	1980,81
Conimitella williamsii	Whiskey Gap	1987
Ribes inerme	Whiskey Gap	1986,88-90
Ribes viscosissimum	Whiskey Gap	1989,90
	Waterton Lakes N.P.	1990
Astragalus lotiflorus	Medicine Hat	1986
Astragalus purshii	Pakowki Lake	1984
Lupinus lepidus	Whiskey Gap	1986,88-90
Lupinus pusillus	* Medicine Hat	1989,90
	* Dinosaur Provincial Park	1989
Oxytropis lagopus	Whiskey Gap	1986,87
Polygala paucifolia	Fort McMurray	1976-78,80-85,87-90
Viola glabella	Waterton Lakes N.P.	1990
Viola pedatifida	Calgary	1978-81,83
	Red Deer	1981,86,89,90
	* Buffalo Lake	1977-79,81,82
Viola selkirkii	Glenevis	1983,89
	Cooking Lake	1990
Osmorhiza chilensis	Cypress Hills P.P.	1987,88
Osmorhiza longistylis	Edmonton (unconfirmed)	1981
Gentiana aquatica	* Red Deer	1989,90
Phlox alyssifolia	Whiskey Gap	1986-90
	Lethbridge	1986
Hydrophyllum capitatum	Waterton Lakes N.P.	1990
Castilleja cusickii	Whiskey Gap	1986-90
	Milk River Ridge	1990
Penstemon eriantherus	Head-Smashed-In Buffalo Jump	1988
Lonicera utahensis	Waterton Lakes N.P.	1990
Crepis occidentalis	Milk River, SE Alta.	1988
Erigeron radicatus	* Whiskey Gap	1987-90
Hymenopappus filifolius	Whiskey Gap	1987



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Author's Address:
Northern Forestry Centre, 5320 - 122 Street,
Edmonton, Alberta T6H 3S5.

1991 Canadian Nature Federation Conference, Red Deer

Dorothy Dickson

Members of the Red Deer River Naturalists will have to come up with something very special to celebrate their centennial in fifteen years' time if they want to top the Canadian Nature Federation Conference with which we celebrated our 85th Birthday this year!

After two years of planning and work, it was very satisfying to act as hosts to the largest and, according to many of our visitors, one of the best of the CNF's twenty annual conferences. We had hoped to have about 200 registrants but reached 274 - and that is not including those who just came to the special events such as the BBQ. There where naturalists from every province, the Northwest Territories and three States.

Meeting people from so many places was certainly one of the delights of the Conference. We had twenty-five field trips planned and registration for the longest two was disappointing. The week-long mountain trip had to be cancelled and the prairie tour attracted only 25 participants rather than the possible 40. However, those that did go greatly enjoyed the trip and expressed their thanks to the Lethbridge Naturalists for their hospitality on a rather wet evening. All other field trips, varying from 3 hours to 3 days in length, were well attended and much enjoyed, including the day tour arranged for us by the Buffalo Lake Naturalists.

As an intoduction to our 2-day symposium on the Red Deer River ''Flowing Through Alberta'', we used the A/V presentation (now available as a video) that we made with the help of a grant from F.A.N. for the 1989 ''Flowing to the Future'' Conference. Then, after a view of Alberta's rivers from a native person and an environmentalist, speakers took the audience from the mountain headwaters, through the aspen parklands and out to the badlands and prairies. Following a general introduction to each of these major ecoregions, registrants could choose between talks on a region's natural history or its environmental problems and we found they divided about 50/50 throughout.

All twenty of our speakers work in Alberta and we are most grateful to them for the time they put into preparing their first-class presentations. Many registrants said how impressed they were and commented favorably on our inclusion of so many young scientists. Particularly well received were Kevin Van Tighem's eloquent talk on what we are doing to Alberta's rivers and the account of the lives of Richardson's ground squirrels by Dr. Gail Michener of the University of Lethbridge with its wealth of information and wit. The symposium coordinator and A/V crew did an excellent job of keeping the program moving along on time. The only criticism we received was that we had perhaps not given the audience time to ask all the questions they would have liked.

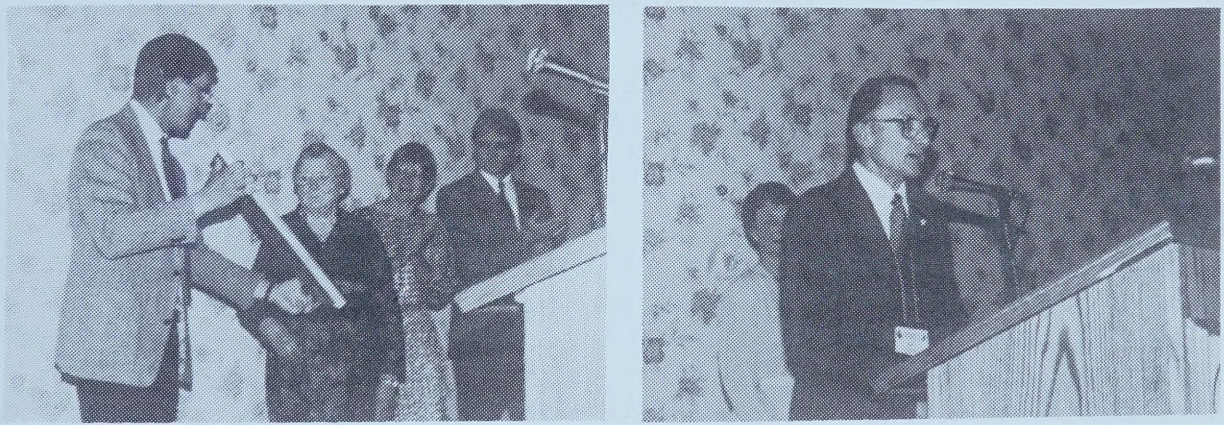
All speakers donated their time to participate and, as a token of our appreciation, we made donations in the name of each of them to the Grasslands Trust Fund set up by the CNF to purchase land to be added to Grasslands National Park.

We invited Red Deer's MP and two MLAs to chair half day sessions for us. John Oldring MLA was unable to come, but Doug Fee MP and Stockwell Day MLA both felt it was a good way for them to be involved and expressed great interest in the talks they chaired. When Mr. Fee later spoke on behalf of the federal government at the banquet, he teased us about having found a way to make politicians listen without being able to talk back! He brought a message from Environment Minister, Jean Charest, and gave a copy to CNF President, Jacques Prescott, so that we can ''hold the Minister to his promises''. He also pledged to work to get all-party support for an Endangered Species Act.

Also at the banquet the CNF's Pimlott Award was presented to Joy and Cam Finlay and presentations were made to Winnie Ellis, co-founder of the Ellis Bird Farm and to Martha Kostuch for their conservation work in central Alberta.

The weather let us down for Friday evening's barbecue. Shortly after the buses arrived at the Canyon ski hill just outside Red Deer, the showers started. We retired into the chalet where native elders performed a sweetgrass ceremony and blessed the food for us. By the time we had finished eating, the showers had become a roaring thunder storm but we tried to ignore it and

Speakers on many environmental topics found sympathetic and interested audiences.



Many Alberta naturalists were recognized for their years of dedication. Joy and Cam Finlay were joined by Winnie Ellis and Martha Kostuch.

WHAT NOW Green ?
MYTH # 2
Cattle compete with wildlife and destroy wildlife habitat
MYTH # 3
Beef contain dangerous chemicals
MYT

Banff's Precipice Theatre performed the thought provoking production "Cowabunga!"
(Photos: Myrna Pearman)

all crowded into the main room to see a performance by the Precipice Theatre of Banff. ''Cowabunga'', their satire on the effects of cattle grazing on wildlife habitat, was great entertainment and the performers were impressed to have an audience that understood every joke! In spite of the weather and some anxious minutes when one of the buses could not make it back up by then a rather slippery Canyon hill, a merry evening was enjoyed by all.

Non-profit groups and the Government programs in which we participate provided more than twenty displays which looked most attractive set up in a big, bright room at the Red Deer Lodge. Those with things to sell did a good trade.

We had twelve participants in the Youth Program. At other CNF conferences, any planned children's activities have had to be cancelled due to lack of interest but we found both children and parents were enthusiastic. We congratulate the Kerry Wood Nature Centre Association and staff for doing such an excellent job and hope organizers of future confernces (1992 is in Quebec) will also be able to find a way of attracting young families. The breakfast birthday party on Sunday was great fun! The hotel staff cheerfully added more tables and produced enough food for the 30 extra people who turned up to add to the 200 we had expected. A humorous nature quiz (won by Cliff Wallis), packets of wild rose seeds, wild berry jams made by our members and surprise gifts all added to the 'family party' fun. We then invited all the CNF and RDRN past-presidents to join in lighting the 85 candles and, after we had sung 'Happy Birthday', the twenty children present came up and blew them out for us. We finished by cutting the cake decorated with RDRN's owl logo.

At the CNF's Annual General Meeting which followed the party, two resolutions were passed. One was to request meaningful studies on the need for, and effects of, the James Bay II hydroelectric project in Quebec. The other, proposed by the Red Deer River Naturalists, called on the Alberta Government to provide protection for the Rumsey Parklands, described by the World Wildlife Fund as ''the largest remaining representative site of aspen parkland left in the world''.

While many registrants praised the content and organization of the Conference, we found it was often the small things that gave people most pleasure and encouraged the friendly atmosphere of the meeting - the hot coffee and muffins for the 6 a.m. 'early-birders', the attractive signs, name tags and meal tickets, the convenient time-table booklet, the home-made jam and birthday cake and many other felicitous ideas. The obliging hotel staff and the ever-cheerful presence of our registrar, Jennifer O'Brien, were also a great help in keeping people happy.

Personally, I derived a lot of pleasure from watching the somewhat anxious expressions of the planning committee members on the first evening, change to wider and wider smiles of jubilant satisfaction as they saw the results of their work and realized the extent of their achievement. Congratulations and thanks to you all.

Author's Address:
R.R.#2, Innisfail, Alberta T0M 1A0.

See also Rumsey Aspen Parkland Wildland Area Resolution on page 83.

Changing Patterns of Pronghorn Occupation in the Hanna Area

by Bob Gainer

Most distribution maps for Ponghorn Antelope (Antilocapra americana) describe their summer range as to the southeast of Hanna (Mitchel, 1983), and their winter range further to the south of here where there is a plentiful supply of the woody Silver Sagebrush (Artemisia cana). The provincial government's licensed hunting zones actually reflect this distribution. However, for the last 10 years many locals have noticed an increase in the overall numbers of pronghorns in the Hanna area, and an expansion of their range to the north and west of town in particular. They also have noticed that most of the animals in these recently colonized areas do not move south in the winter but instead bank up and remain in the area over winter.

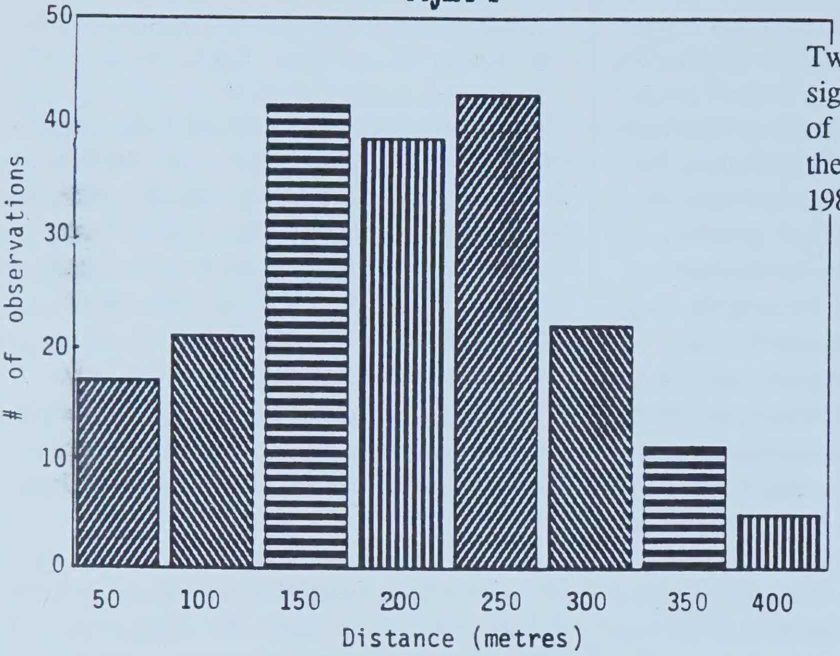
The three winters and two summers I have spent in the Hanna area I have been following this trend. At first I tried to compare the northwest band with pronghorn in what was formerly favored habitat to the east and south by making population estimates from the roads based on distance categories and group sizes (Burnham et al, 1988). However, I found that the basic premise or the half normal distribution, that most animals are in the initial category, was not fullfilled. Pronghorn it appears avoid roads (Fig. 1). I did find though that they were more frequently observed in the northwest.

Also in the northwest I was able to make total count estimates in the winter using my own air raft on a bimonthly basis for two winters. The whole population would sometimes appear to band together in one large herd which could then be estimated. My highest count of this herd from the ground was 187, on December 16, 1989, which was consistent with my aerial estimate for the entire group of circa 200. This population contained very few mature males, consisting primarily of females and immatures. The other mature males may have moved south or formed their own groups for the winter that I did not detect. Smaller bands are sometimes seen scattered throughout the area during the winter and occasionally a farmer will describe a male pronghorn overwintering with or near his cattle.

This population to the northwest is associated with a collection of about a dozen of what were at one time 20 - 200 hectare alkali sloughs that have for many years now been partially dried up alkali flats known as Chain Lakes. From March to October pronghorn are associated almost entirely with the native pasture that surrounds these lakes. There are a few grazing leases that utilize the larger of these pastures for livestock but mostly they are small patches that are not worth fencing or cultivating - corners of fields cut off by roads, right of ways, coulees, hills and patches of rough or flooded ground that tend to be saline. The xerophytic vegetation on these native pastures is typical of summer pronghorn range - especially non-woody Pasture Sage *(Artemisia frigidia)*, blue gramma *(Boutelia gracilis)*, and needle and thread speargrass *(Stipa comata)*.

From November to February pronghorns still associate with the Chain Lakes area and probably the sage they are known to prefer (Mitchell, 1983), but now most of their time is spent on cultivated lands on the slopes and higher ground. The attractions seem to be the green fall/winter rye, green summerfallow weeds especially Stinkweed,

Figure 1



Two hundred perpendicular sighting distance categories of pronghorn observations in the Hanna, Alberta area 1988-91.

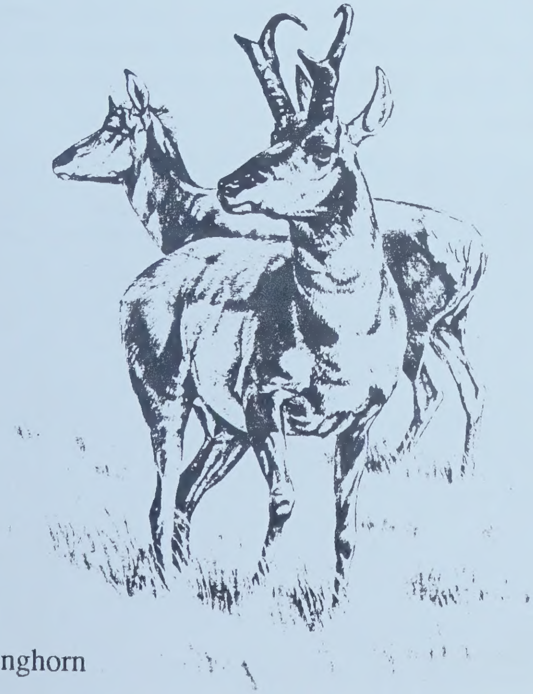
the uncut alfalfa planted near the lake for soil desalinization, and stubble fields for them to loaf, feed and sun themselves on. For the most part the alkali lake bottoms are barren and exposed, providing the visibility and escape terrain antelope favor, and also exposing the otherwise unavailable, short pasture sage. In addition abandoned farm sites, windrows, snow fences, old railroad beds and other earthen structures plus some hills with gullies and brush provide them with protection from the severe winter winds.

The reason for this expansion of pronghorn range to the northwest is associated with the weather change the region has been having for the past 15 years or so. It is not so much that it is hotter (there have been record low temperatures while I have been here) or drier (although rainfall has been significantly less), but that the region is more subject to chinooks. Before the snow used to accumulate during the winter and the runoff in the spring would fill the lakes, creeks and dugouts. Now there will be several times during the winters when the snow will be completely melted so that in the spring there is little, if any, runoff. This reduced snow cover allows pronghorn access to the easily uncovered pasture sage and diversity of vegetation associated with cultivation and it does not impair their mobility excessively.

Another factor in this change of habitation may be the lack of a hunting season in the region for this northwest population. However, if hunting of mature males drives them south in the fall then the mature males should be well represented in this overwintering population, which they don't seem to be. Whatever the reason, whereas they normally are associated with the vast and unpopulated ranches to the southeast, now the densest numbers are along a stretch of acreages, cultivated land and hills on the northeast edge of Hanna that actually overlaps range with moose *(Alces alces)* near Endiang and Byemoor.

Probably the winter of 1989-90 best illustrated the pronghorn's opportunistic nature. The summer of 1989 was dry until mid-August when it rained heavily. A tremendous germination of weed occurred in the land that had been summer fallowed. The growth of stinkweed was so dense on one field it was like a crop which stayed green even after freezing in the fall. When chinooks melted and warmed everything it would regrow again, on and off all winter long. Probably the whole pronghorn population in the area stayed married to this field all winter long (although mature males were notably unrepresented).

Then in March they dispersed throughout the area along the lakes for solitary does to give birth to their young from mid to late May and for the mature males to eventually establish their territories. Twins seem rare, probably one set in five fawns. Cultivation equipment seems to take an exceptionally high toll of these fawns along with our abundance of coyotes *(Canis latrans)* and local dogs.



Pronghorn

Once in a while I am out on these treeless expanses early in a morning, quiet, cool, beautiful and clear; the shortgrass alive with Horned Larks and Longspurs, and I look up to see a curious male approaching me to within 20 metres, my only companion in a vast and lonely land. Or in May I can take my family for a drive to see if we can spot a doe with a fawn. Sometimes if we stop and walk towards the doe, the fawn will drop to the ground and lay there immobile, while the children approach it and stare in awe - then suddenly have it lurch to its feet and dash off unsteadily to join its mother. One of life's loveliest classrooms.

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Author's Address:
Box 1058, Hanna, Alberta T0J 1P0

Please remember the Alberta Bird Atlas photo contest. Deadline Oct. 31/91. Ph. 453-8629 for details.

Wildlife Watching is in and so is the Challenge

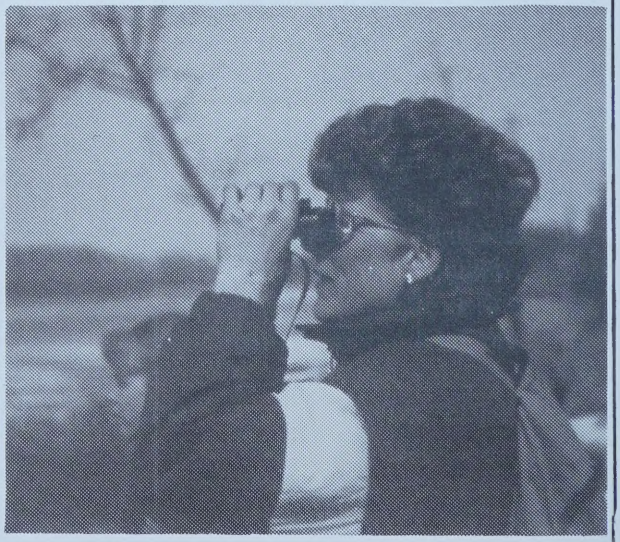
J. Cam Finlay

Wildlife watching has come out of the closet and become the fastest growing hobby in North America. In Alberta, participation has grown from 89.1% (this high involvement really startled wildlife managers) in a federal study by Statistics Canada in 1981 to 91.1% in 1987. A more recent study, not yet published, of Albertans suggests this figure is now almost 96%. These high participation numbers are also shown in other recreation studies. In addition such numbers are reflected in expenditures by Albertans who spend close to %400 million a year for non-consumptive use of wildlife (i.e. non-hunting).

At the same time involvement in hunting is falling. Expenditure in Canada for ''non-consumptive'' wildlife related activities including birdwatching, feeding birds, taking trips to see wildlife, etc. has increased to $4 billion in 1987 versus $3 billion in 1981. Whereas expenditure on all game hunting decreased from $1.2 billion in 1981 to $1 billion in 1987.

Such an increase in participation and expenditure also brings a challenge to those of us who have been ''naturalists'' for a long time. These new ''environmentally aware'' people desire information and want assistance in learning more about the natural world and we are the ones who should respond positively to their requests. For years we decried the lack of interest in the environment and the degradation of habitat. Now with the upsurge of interest we should, and must, step forward to provide leadership in the naturalist, environmental and ''greening'' movement that is sweeping North America, including Alberta. Who better to take the lead than long-time naturalists, those who have spent many hours in the field and also window watching nature. We must take up the challenge and show people what we have to be proud of in Alberta.

It is important that we take on this leadership role or else sit back and watch our northern forests be clearcut as is now occurring in South America and also our rivers dammed and habitat lost with water sold to the ever thirsty southwestern U.S.A. It is easy to decry the loss of habitat far away, but what about close to home -



Nature walk at Kerry Wood Nature Centre & Irene Watson viewing (Photos: M. Pearman)

Alberta. This is the province that will soon be deforested if the several mills are allowed to go into full production. These are the forests that produce the warblers and other boreal species that each spring and fall pass through our back yards. If their breeding habitats are clearcut they will not reproduce and Rachael Carson's "Silent Spring" will be the inheritance we pass on to our grandchildren.

I challenge each and every reader of this article to become more involved and more committed to do something. Each of us acting together can make a difference. Take a family for a nature walk, help your local club write a brief; become a volunteer with your local nature centre and/or natural area warden; hold a back yard or garage sale of extra material to raise money to support an active group trying to prevent a deforestation or stop a dam project; and re-landscape your backyard to attract and hold wildlife and earn an award certificate from the Federation of Alberta Naturalists.

Author's Address:
Box 8644, Station "L", Edmonton, Alberta T6C 4J4.

Birding in Costa Rica: A Visit to Monte Verde

Garry Newton

The Monte Verde Cloud Forest Reserve, straddling the Continental Divide of the Tilarin Cordillera, encompasses over ten thousand hectares representing eight distinct ecological life zones. Four hundred species of bird have been reported in the Reserve. Naturalists from, around the world have delighted in the opportunities afforded by this beautiful and interesting area.

The geological recent uplift of the Andes, Pleistocene glaciation, and the formation of the Panamanian land-bridge, have all contributed to the development of an unusually rich avifauna in north-western South America and Central America. Costa Rica is particularly rich in birds and its progressive programs of conservation make it a wonderful country for the naturalist to visit. Monte Verde is one of its most renowned reserves.

As this was my first birding visit to the Neotropics I found it difficult to determine exactly what I hoped to see. On the one hand, we are all encumbered to some degree with the birds we learned to love in childhood, the penguins, loons and kookaburras, and high on my mental list were such flashy creatures as toucans and macaws. On the other, preliminary reading made it clear to me that Costa Rica is one of the best areas to find the birds typical of the New World, the sub-oscine passerines, which include, motmots, manakins, funariids, woodcreepers, antbirds, and flycatchers. Although a few representatives of some of these families breed in Canada, most are year-round residents of the tropics. Together, they represent an enormously diverse and interesting assemblage, and I hoped to encounter members of each.

Like most activities, birding is a quest for the memorable experience, and each of us understands something different by this. We have distinct preferences which are entirely subjective. For some reason, I've always been interested in trogons, especially the quetzals. Their elegance of line, metallic colouring, fluttering flight, and patient habits strongly appeal to me. And Monte Verde, of course, is virtually synonymous with the Resplendent Quetzal, one of the most beautiful birds in the world. A trip to this area would be incomplete and unsatisfying without enjoying a good view of this extraordinary creature.

Our group was met at the hotel at

sunset by scores of very beautiful blue-and-white swallows and three brown jays, an excellent beginning, and a good indication of what the next few days would bring. On our first visit to the Reserve we explored a trail through lush wet montane forest, and in a short time had been rewarded by the sight of several interesting birds, including grey-breasted wood-wren, common bush-tanager, prong-billed barbet, three-striped warbler, emerald toucanet and highland tinamou. We also saw lineated foliage-gleaner, green-fronted lancebill, bronzed cowbird, blue-crowned motmot, mountain robin, scrub euphonia, red-faced spinetail, and the ubiquitous and urban rufous-collared sparrow, a very pretty zonotrichia. Nearly all of the identifications were made by our tour leader, which created some problems: when someone else does the the work for you, you are less likely to retain a good visual impression than if you approach the challenge independently. But one has to learn somewhere, and we enjoyed the services of an excellent teacher; it would be up to us to upgrade our sightings later and make them our own. The initial visit to a particular habit, however, proved enormously confusing; too much to see, too little time. When we had called at the Hummingbird Gallery and were introduced to green-crowned brilliants, striped-tailed hummingbirds, green violetears, coppery-headed emeralds, purple-throated mountain-gems and violet sabrewings, all within a matter of minutes, and most species represented by several individuals, we were all adrift and baffled by the sight. It wasn't until two days later, and additional visits to this rewarding glade, that I could sort them out. (The violet sabrewing, being very large and strikingly coloured, was the only hummingbird I felt comfortable with from my first view.)

Towards sunset on our first full day we explored another trail in the Reserve, a boardwalk laid out to accommodate hoards of visitors and provided with signposts indicating various features of interest. When we reached a sign which pointed towards the canopy and said, with infuriating simplicity, QUETZAL, I was rather irritated. The most beautiful bird in the Americas can be indicated with the same certainty as a tree? But high in the canopy, scarcely visible in the late-afternoon drizzle, was the unmistakable silhouette of a female quetzal. The experience left me flat: no colour, no movement, merely a distant dim shape, and for one sceptical moment I wondered if it were a cutout tacked up to please the tourists. It seemed a long way to travel for such a disappointing view.

The following days yielded a number of desirable species in other locations, including Chirriqui quail-dove, ruddy treerunner, spotted barbtail, slaty antwren, golden-winged warbler, long-tailed manakin and great kiskadee, plus many others. By now we were observing some species on multiple occasions and were beginning to get a handle on them. The diversity and abundance of birds was absolutely wonderful.

On our final morning we were driven to a point below the Reserve and asked our driver to collect us a couple of miles down the road, which we hadn't birded yet, except casually, from the van. On the ascent we had stopped to view a barred forest-falcon, which treated us to several superb views as he flew from one vantage point to another to investigate the tape-recorded call of his species. This good forture put us all in high spirits. On the walk down the mountainside, through cleared pastures and meadows, we saw worm-eating warbler, paltry tyrannulet, collared redstart and yellow-faced grassquit. Then, at the moment the tour leader was directing everyone's attention to a fine clump of terrestrial orchids at the roadside, I caught a flash of colour in a tree some fifty feet away: a male Respendent Quetzal. At almost the last possible minute, Monte Verde worked its magic and provided the group with ten or twelve minutes of an experience that would be nearly impossible to surpass. The quetzal is about fourteen inches in length, but its train of tail-coverts can add nearly three feet. Our bird preened casually on a branch, its glittering, iridescent gold-green head and back contrasting with dull red belly and metallic green-blue train, which he swung gracefully from side to side. When he eventually flew off into the woods he showed that marvellous fluttering flight I'd read about. This happened at 9:03 on the second of March. It was the kind of experience where I felt obliged to record the exact time in my notebook. If a harpy eagle, carrying a sloth, had swooped by at that moment, the sight wouldn't have made the slightest impression. But several minutes later we saw a rufous-browed peppershrike, lovely little thing, and I realized that I'd have to think about the quetzal later, when I had more time.

(Reprinted from Sagebrush Chronicle, May 1991)

Author's Address:
144 - 2 Street, S.W., Medicine Hat, Alberta T1A 4A8.

Mark your calendar for F.A.N. ANNUAL GENERAL MEETING and WORKSHOP, January 25, 1992 in Edmonton.

The Calgary Eco-Centre

Trevor Borden

For over a year now, the Calgary Eco-Centre has been informing the Calgary community about issues associated with the environment. Along with many other environmental organizations, the Eco-Centre believes that education is the key to changing our way of life to become more in tune with nature and less destructive. For many people, a step-by-step approach to changing one's lifestyles and thought processes is the most effective approach. The Eco-Centre is well equipped to keep people moving along this path.

The Centre consists of three rooms in the back of a grey stucco house beside Mountain Equipment Co-op, a well-known outdoor equipment store. One room is devoted to the familiar trappings of an office: filing cabinets, in-baskets, recycling boxes, telephones, a computer, etc.... The other room is a library with books, magazines, files, and pamphlets that cover a broad range of topics and come from a number of sources. An extensive library on organic gardening (donated by the Sustainable Agriculture Association) sits beside books on the ozone layer and recycling plastics. Beside this, there is a large bookcase with hundreds of back issues of magazines from throughout North America. The library is designed to be a starting place for research on any topic that concerns the environment.

The third room is a converted kitchen; it still has the sink and coffee mugs, but the stove has been replaced by a reception desk and the fridge by an ever-changing display.

The atmosphere of the Centre is highly variable, but is usually cheered by many brightly coloured posters advertising issues from around the world. Sometimes, the place is busy with the staff answering ringing phones, people milling about learning about energy efficiency, and volunteers at work in the library; or it may be very quiet on a Thursday night with a lone volunteer tapping away at the computer keyboard. It is sometimes very tense, as the members of the Eco-Centre board of directors discuss issues or funding. One thing is for sure: Like the world and environmental community, the Centre is always changing!.

The building itself may be the most concrete and visible part of the Calgary Eco-Centre, however there is much more. From the almost tireless dedication of volunteers and staff come some interesting initiatives, such as the AGT Talking Yellow Pages line, on which there is a weekly ''Calendar of Events'' and a ''Greenline'' discussing recycling information in the Calgary area.

Bi-monthly Eco-Cafes are held to provide a relaxed forum for discussion, and often the Eco-Centre volunteers can be found at gatherings of all sorts, providing information to a very eager public. There are other ways the Eco-Centre hopes to help the environmental community as well, far too many to list here.

The environmental community in Calgary and in Alberta is diverse. It is made up of many hard working people and there is a need to ensure there is not too much duplication of effort, and that the available resources are well-used. Perhaps a central hub such as the Calgary Eco-Centre can provide a good starting point for achieving the dream of a well organized, cohesive force of groups dedicated to saving our planet.

(Reprinted from Environment Network News - Alberta)

Author's Address:
Calgary Eco-Centre, 1019 - 4th Ave., S.W., Calgary, Alberta T2P 0K8.

Evergreen, Everblue

Glen Chilton

Your children won't be hearing any new Raffi sing-alongs in the near future. In a major career move away from the material that made him famous, Raffi has gone green. Convinced that our planet can only be saved by ''a change of heart and mind'', the popular children's entertainer has turned his creative talents to the Green Revolution.

This eleven song compilation is an interesting mixture of easy listening, jazz/ blues, and reggae, unified by a theme of life-in-harmony. The arrangements are tidy, allowing the thoughtful lyrics to show through. Raffi has avoided an overly pessimistic tone, choosing instead music that ''celebrates our power to act together to preserve the beauty and bounty of the Earth for our children's future''. The exception is a piece that refers to ''clean rain'' in the distant past tense. The value of the sun (a plug for solar power?) is a recurring theme.

At least one piece (Big Beautiful Planet) has been lifted from his earlier albums for children. Even so, this is most certainly not a recording for children. Youngsters might be distressed by lyrics like ''Why are we polluting our children? // There's no future in that // Why put food in our poison? // There's no future in that.'' The package does not offer specific warning that this is not a children's album, but I was pleased that at least one Grande Prairie merchant knew to house it with recordings of other male vocalists, rather than in the children's section.

Two pieces on this album stand above the others. The title track (preceded by wonderful recordings of a timber wolf and a brown thrasher) highlights current ecological concerns. The closing track ''We Are Not Alone'' suggests that the individual concerns about the environment is part of a greater ecological conscience. Both use a vocal ensemble to emphasize the power of unity. ''The more we get together // The more we help this planet Earth''.

These songs are not a 90s equivalent of 60s protest music. They are not as voilent as Cockburn's :If a Tree Falls in the Forest'', or as negative as Sting's ''Black Seam''. Raffi doesn't preach like David Suzuki, though the liner notes credit Suzuki for inspiration. This album gently invites the listener to join the environmental movement. For the already converted, it offers a renewal of faith. If we are going to be in a position to offer a habitable planet to the following generation, we will need more of the commitment that Raffi is asking of us. Evergreen, Everblue may be a children's album after all.

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Author's Address:
Grande Prairie Reg. College, 10726 - 106 Avenue,
Grande Priarie T8V 4C4.

Request For Assistance

The CANADAIN WILDLIFE SERVICE, Western and Northern Region, will be banding shorebirds during fall migration in Saskatchewan, Canada. Birds will be dyed yellow (orange) on their underparts, and banded with a white flag band and a red or green color band. Please send reports of sightings to: H. Loney Dickson, Canadian Wildlife Service, Room 210, 4999 - 98 Avenue, Edmonton, Alberta T6B 2X3, Canada [Phone (403) 468-8917]; or to Cheri Gratto-Trevor, Canadian Wildlife Service, 115 Perimeter Road, Saskatoon, Saskatchewan S7N 0X4, Canada.

Loran L. Goulden Memorial Award Nominations

Nominations for the Loran L. Goulden Memorial Award for outstanding contributions to natural history in Alberta are sought at all times, but to be considered for the 17th Annual Award nominations should reach the Chairman of the selection committee by 1st December 1991. The 17th award will be presented at the Annual General Meeting of the Federation of Alberta Naturalists in January 1992.

Nominations may be for contributions in any field of natural history within the province of Alberta. All previous nominations of persons who have not yet received the award will be considered, but nominators of such persons are encouraged to update these nominations. Previous Awardees have been: *Dick Dekker, W. Ray Salt, Charles D. Bird, Robert Lister, Joy Finlay, John M. Powell, Lois Fenna, Martin McNicholl, Fred Schutz, George Freeman, Tim Myres, Kerry Wood, Marg Reine, Mary Lore, Lloyd Lohr and Cam Finlay.*

Nominations should be sent in writing to the Chairman or given to another member of the committee (Lloyd Lohr, Stettler; Derek Johnson, Edmonton; Graeme Greenlee, Lethbridge; David Ealey, Chairman Loran L. Goulden Memorial Award Selection Committee, 3903 - 105 St., Edmonton, Alberta T7J 2K7 (434-0841).

Book Review

Prairiewater - Watchable Wildlife at Beaverhills Lake, Alberta

Dick Dekker with photographs by Edgar T. Jones, 1991. 144 pp BST Publications, 3819 - 112A Street, Edmonton, Alta. T6J 1K4; $19.95.

What a great book put together by two of our best Alberta field naturalists. Dick with his keen eye and descriptive pen and Ed with his photographic skills have produced a book that should be on every Alberta naturalist's bookshelf. Beaverhills Lake is described from its geological setting and habitat, aboriginal people, fur traders and settlers through the abundant wildlife, particularly birds that make this area one of the best in Canada. Recently established as a Ramsar site of international significance, it also is a Canadian Nature Federation national Nature Viewpoint and contains two provincial Natural Areas.

In the preparation of this book Dick has covered an estimated 14,000 km of foot travel on 1400 days over nearly three decades. These visits have produced numerous details on predator/prey interactions and hunting techniques of both birds and mammals, many documented in delightful detail.

The book, including a good map provides a focused look at the birds on and around the lake together with habitats, plants, mammals, fishes, amphibians and reptiles. The text begins with a look at the geological features shaping the landscape, earlier and present climates and a brief review of the aboriginal peoples who came to live here plus the early fur traders and settlers that followed.

As a good wildlife book should do, it begins with a discussion of the resource, the water and life in and around the lake including different water levels throughout recorded history and impacts of this changing shoreline.

This section is followed by birding by the seasons beginning with the arrival of horned larks and snow buntings in the late winter followed by mated pairs of Canada geese then the large flocks of smaller Canada geese and so on. He describes the hordes of white-fronted geese followed by snow geese that come to fatten up for several weeks each spring before heading to Arctic nesting grounds in late May. Masses of sandhill cranes come here, too. Then come the waves of shorebirds for which the lake shore is so noted. These begin with yellowlegs, godwits, dowitchers and pectoral sandpipers in late April and early May and end in early June as the last stragglers go north. Local breeding shorebirds are described and where to find both these and the migrants. He goes on to discuss the returning shorebirds that begin coming back in mid-July.

No book on Beaverhills Lake would be complete without a description of the predators that hunt the numerous water birds and Dekker does a good job here, too. He has specialized in studying peregrine falcons at this site and gives several personal observation accounts of both successful and unsuccessful hunts by this bird of kings. Owls and their impact on bird colonies are also included. His discussion of short-eared owls is a delight to read. Dekker includes a good section on birds of the uplands around Beaverhills including when different species arrive and which stay to nest. The section on rarities includes a good description of the first recorded successful nesting of black-necked stilts in Canada.

The section on mammals is not as

complete as on birds but still meets the needs of visiting naturalists. All of the larger mammals to be found are discussed at some length.

The book closes with checklists of birds, fishes, amphibians, reptiles and trees, shrubs and flowers. A list of references for further reading is a help for those wanting more information.

In summary any naturalist, particularly those keen on birds, should add this book to their library.

J. Cam Finlay

Great Blue Heron

Recent Publications on Natural History at the Provincial Museum of Alberta 12845 - 102 Avenue, Edmonton, Alberta T5M 0M6

Occasional Paper Series

No. 11. A Checklist of the Mammals of Alberta (Revised 1989). 1989. Hugh C. Smith 7 pp.

An up-to-date list of the 91 species of mammals currently recognized as occurring, or recently having occurred, in Alberta. Taxonomic notes for some groups are included. Unless otherwise noted, all publications are available from the Publications Secretary, Natural History Section, Provincial Museum of Alberta. Payment for these publications should be made by cheque, made out to Friends of the Provincial Museum of Alberta Society. $1.95 + $1.00 (shipping and handling) + G.S.T. = $3.13*

No. 12. Natural History of the Andrew Lake Region, Northeastern Alberta. 1990. W. Bruce McGillivray and Ross I. Hastings (eds.) 97 pp.

An account of the flora and fauna observed and collected by museum staff during an expedition to the Kazan Upland area of northeastern Alberta in June of 1988. Subjects discussed include: environment, vegetation, flora, aculeate wasps, ground beetles, butterflies, fishes, reptiles, amphibians, birds, and mammals. $9.95 + $3.00 (s and h) = G.S.T. = $13.85*

No. 13. Alberta Birds, 1971-1980. Volume 1. Non-Passerines. 1991. Harold W. Pinel, Wayne W. Smith and Cleve R. Wershler. 243 pp.

An exhaustive compilation of observations of non-passerine birds by amateur naturalists throughout the province during the period 1971-1980. A section on interesting status, abundance or distribution changes summarizes bird highlights of the decade. Available from the Calgary Field Naturalists Society, Box 981, Station M., Calgary, Alberta, T1P 2K4....$12.00 + $3.00 (s and h) = $15.50

No. 14. Bibliography of the Family Catostomidae (Cypriniformes). 1991. John Clay Bruner. 224 pp.

Over 2000 references for studies relating to fishes of the sucker family (Catostomidae). Entries are indexed to author, scientific name and common name for easy access even for those not familiar with fish taxonomy. $9.95 + $3.00 (s and h) + G.S.T. = $13.85*

No. 15. Proceedings of the Second Endangered Species and Prairie Conservation Workshop. 1991. Geoffrey L. Holroyd, Gordon Burns and Hugh C. Smith (eds.) 284 pp.

This conference addressed a wide range of topics dealing with endangered species and conservation concerns in the prairie provinces. Broad subject categories include: Agriculture and Wildlife, Prairie Conservation Action Plan, Prairie Shorebird Conservation, and Endangered Wildlife. Available from the Blue Jay Bookshop, Saskatchewan Natural History Society, sub P.O. #8, 1210-7th Avenue North, Saskatoon, Saskatchewan, S7K 2W2....$15.00 + $2.00 (shipping and handling - $3.50 U.S. or overseas) + P.S.T. (Saskatchewan residents only) $19.80 (U.S. or overseas)

No. 16. A Bibliography of Alberta Ornithology (Second Edition). 1991. David M. Ealey and Martin K. McNickoll. 751 pp.

Seven thousand four hundred and forty four references to works dealing with Alberta ornithology are listed. Entries are arranged into 20 subject categories and indexed by author, subject, species, and locality. An updated Alberta bird species list is included. $19.95 + $5.00 (s and h) = G.S.T. = $26.70*

Spring Migration: A Visit To Point Pelee

Bob Frew

Point Pelee National Park is perhaps the best location in North America to observe the northward migration of birds. The most impressive part of Pelee's spring migration is the diversity and huge numbers of northbound warblers passing through the area. This enticed me to visit Point Pelee in mid-May, at the height of the spring migration.

The migration is not a steady flow of birds arriving from the south, but rather a series of intermittent waves, a pattern which is unique to the eastern part of the continent.

The weather plays an important role in the number of species and individuals one is likely to see. A wave usually occurs as a result of a warm weather front from the south or southeast meeting a cold weather front from the north or northeast, causing the birds to descend. These ''groundings'' can lead to large numbers of birds landing at Point Pelee.

Point Pelee is a sandspit 20 kilometers in length, with the southern half comprising the national park. It is a mixture of marsh, Carolinian forest, fields and beach, situated on the north shore of, and extending into, Lake Erie. It is the southernmost point of mainland Canada, and much of the park's unique character is due to its southern location.

Each spring one hundred thousand birders, photographers and others visit the park. Despite these large numbers the movement of visitors is well organized, so that damage to the area is minimized.

The total number of bird species recorded at Point Pelee is a remarkable 347, and as many as 39 warblers have been seen during a single migration. Pelee's nature trails cover a variety of habitat. In parts, vines hanging from the trees give Pelee a jungle-like appearance typical of a Carolinian forest; here, several plants and animals rarely found in Canada flourish.

The ''Tip Trail'', at the extreme end of the point, is an excellent bird-watching route, attracting hundreds of birders each season. This small and productive area results in many rare finds. At times the trees were full of warblers, with up to six species in one tree! Typically, groups of birders gathered around these trees with the more experienced birders identifying and pointing out the different species. A list of all bird sightings is maintained at the visitor centre.

Walking around the Tip Trail, I observed twenty-three species of warbler, including Blue-winged, Golden-winged, Tennessee, Nashville, Chestnut-sided, Magnolia, Cape May, Blackburnian, Bay-breasted, Black-and-White, Blackpoll, Wilson's Canada, Black-throated Green, Black-throated Blue, and Yellow warblers. Along with American Redstart, Common Yellowthroat, Yellow-breasted Chat, Ovenbird, Northern Waterthrush and Tufted Titmouse were four species of vireo: Solitary, Warbling, Red-Eyed and Philadelphia. Large patches of columbine attracted several Ruby-throated Hummingbirds.

On the ''Tilden's Wood Trail,'' which passes through mature forest, I saw Indigo Bunting, a Rose-breasted Grosbeak, Northern and Orchard orioles, numerous Northern Cardinals, and a Carolina Wren.

Finding a rarity is exciting and rewarding. With this in mind I spent two days at nearby Rondeau Provincial Park, where the Prothonotary Warbler has its largest Canadian breeding grounds. May species common to Point Pelee can also be seen at this location - minus the crowds of people! Like Point Pelee, Rondeau extends into Lake Erie, and represents Carolinian forest and wetlands habitat.

With help from the Park's interpretive staff and birders in the immediate area, we located and observed a breeding pair of Prothonotary Warblers. The nest, located in a tree cavity about four feet above the water, was about twenty feet from the edge of a wooded swamp. These warblers are spectacular, the brilliant yellow, almost orange, cape of the male is something to see! This male seemed to spend much of his time seeking insects and exploring the mossy surfaces of partially submerged logs and branches, while the female continually carried material to the nest cavity.

I was surprised at the warblers' lack of concern at our presence. In fact, if we sat perfectly still they came to within six feet of us. I observed them for about 90 minutes over a two-day period. It was perhaps the highlight of my visit.

Other notable sightings at Rondeau were a pair of Blue-grey Gnatchatchers, a pair of Eastern Bluebirds and a Red-headed Woodpecker. In all, my total species count was 61. My one disappointment was not seeing a Scarlet Tanager.

Author's Address:
486 Sissons Crescent, S.E., Medicine Hat T1B 2J9.

Squirrel Makes Nest in Moth Trap

Bill Biggs

August 16, 1990, dawned sunny warm, a good day to make the rounds and collect my moth traps. This was one of my many tasks as a Forest Insect and Disease Survey (FIDS) ranger.

The traps had been hung back in mid-June, suspended by wire from a branch about 1.5 m from the gound.

As I made my rounds, the operation of removing the trap from the branch and emptying its contents into a bag had become quite routine. Then I came to the Orr Lake sample location, about 25 km north of Barrie, Ontario.

I approached the first trap as usual, grabbing it with one hand and untwisting the wire with the other. Suddenly a small furry animal bolted out of the trap, less than an arm's length from my face. Shocked, I jumped back and dropped the trap, all in one quick motion. I'm not sure which animal was more frightened, the two-legged one or the four-legged one.

Gingerly I opened the trap and found two tiny flying squirrel babies cradled in a grassy nest. A flying squirrel had made a nest in the bucket of my pheromone trap. I removed the pheromone lure (a scent to attract moths) and the moth-killing agent, and hung the trap back up in a tree. Much to my pleasure I eventually saw the mother squirrel return to her young family.

This was indeed a rare catch for a pheromone trap, but there will be no record of this trap catch in the FIDS data bank.

Reprinted from Through the Branches (Forestry Canada), Vol.4, No.1, March 1991.

Northern Flying Squirrel
(Photo: Jim R. Salt)

BIRDS OF ALBERTA SPECIES LIST

David M. Ealey

The following species list of birds for Alberta has been recently published to accompany a bibliography of bird literature for Alberta (Ealey and McNicholl 1991). The list was derived from a checklist published in McNicholl et al. (1981) and additional records of species subsequently reported to occur in Alberta. The references documenting status of species are included in the recent bibliography, with the exception of a few unpublished reports (e.g., Goossen et al. in prep.) and records that have been substantiated, most through Alberta Bird Atlas efforts.

The Latin name is followed by the English name in the list, and together they follow the currently accepted taxonomic order and nomenclature according to the American Ornithologists' Union (1983a, 1983b, 1985, 1989). The status of each species is indicated immediately before the English name as either breeding (* - 268 species), migrant (M - 29), regular winter visitors (WV - 3), vagrant or wanderer (V - 64), vagrant or possible migrant (V/M - 4), or extinct or extirpated (E -4), for a total of 372 species. Species whose status in Alberta is hypothetical (17) are listed following the main species list.

Class: AVES

Order: GAVIIFORMES (Loons)

Family: GAVIIDAE

Gavia stellata	*	Red-throated Loon
Gavia pacifica	*	Pacific Loon
Gavia immer	*	Common Loon
Gavia adamsii	V	Yellow-billed Loon

Order: PODICIPEDIFORMES (Grebes)

Family: PODICIPEDIDAE

Podilymbus podiceps	*	Pied-billed Grebe
Podiceps auritus	*	Horned Grebe
Podiceps grisegena	*	Red-necked Grebe
Podiceps nigricollis	*	Eared Grebe
Aechmophorus occidentalis	*	Western Grebe
Aechmophorus clarkii	*	Clark's Grebe

Order: PELECANIFORMES (Pelicans and Cormorants)

Family: PELECANIDAE

Pelecanus erythrorhynchos	*	American White Pelican

Family: PHALACROCORACIDAE

Phalacrocorax auritus	*	Double-crested Cormorant

Order: CICONIIFORMES (Herons, Egrets and Ibises)

Family: ARDEIDAE

Botaurus lentiginosus	*	American Bittern
Ardea herodias	*	Great Blue Heron
Casmerodius albus	V	Great Egret
Egretta thula	V	Snowy Egret
Bubulcus ibis	V	Cattle Egret
Butorides striatus	V	Green-backed Heron
Nycticorax nycticorax	*	Black-crowned Night-Heron

Family: THRESKIORNITHIDAE

Plegadis chihi	*	White-faced Ibis

Order: ANSERIFORMES (Ducks, Geese and Swans)

Family: ANATIDAE

Tribe: Cygnini

Cygnus columbianus	M	Tundra Swan
Cygnus buccinator	*	Trumpeter Swan

Tribe: Anserini

Anser albifrons	M	Greater White-fronted Goose
Chen caerulescens	M	Snow Goose
Chen rossii	M	Ross' Goose
Branta bernicla	V	Brant
Branta canadensis	*	Canada Goose

Tribe: Cairinini

Aix sponsa	*	Wood Duck

Tribe: Anatini

Anas crecca	*	Green-winged Teal
Anas rubripes	*	American Black Duck
Anas platyrhynchos	*	Mallard
Anas acuta	*	Northern Pintail
Anas querquedula	V	Garganey
Anas discors	*	Blue-winged Teal
Anas cyanoptera	*	Cinnamon Teal
Anas clypeata	*	Northern Shoveler
Anas strepera	*	Gadwall
Anas penelope	V/M	Eurasian Wigeon
Anas americana	*	American Wigeon

Tribe: Aythyini

Aythya valisineria	*	Canvasback
Aythya americana	*	Redhead
Aythya collaris	*	Ring-necked Duck
Aythya marila	M	Greater Scaup
Aythya affinis	*	Lesser Scaup

Tribe: Mergini

Somateria spectabilis	V	King Eider
Histrionicus histrionicus	*	Harlequin Duck
Clangula hyemalis	M	Oldsquaw

Melanitta nigra	V	Black Scoter
Melanitta perspicillata	*	Surf Scoter
Melanitta fusca	*	White-winged Scoter
Bucephala clangula	*	Common Goldeneye
Bucephala islandica	*	Barrow's Goldeneye
Bucephala albeola	*	Bufflehead
Lophodytes cucullatus	*	Hooded Merganser
Mergus merganser	*	Common Merganser
Mergus serrator	*	Red-breasted Merganser

Tribe: Oxyurini

Oxyura jamaicensis	*	Ruddy Duck

Order: FALCONIFORMES (Vultures, Hawks, Eagles and Falcons)

Family:CATHARTIDAE

Cathartes aura	*	Turkey Vulture

Family: ACCIPITRIDAE

Pandion haliaetus	*	Osprey
Haliaetus leucocephalus	*	Bald Eagle
Circus cyaneus	*	Northern Harrier
Accipiter striatus	*	Sharp-shinned Hawk
Accipiter cooperii	*	Cooper's Hawk
Accipiter gentilis	*	Northern Goshawk
Buteo platypterus	*	Broad-winged Hawk
Buteo swainsoni	*	Swainson's Hawk
Buteo jamaicensis	*	Red-tailed Hawk
Buteo regalis	*	Ferruginous Hawk
Buteo lagopus	M	Rough-legged Hawk
Aquila chrysaetos	*	Golden Eagle

Family: FALCONIDAE

Falco sparverius	*	American Kestrel
Falco columbarius	*	Merlin
Falco peregrinus	*	Peregrine Falcon
Falco rusticolus	M	Gyrfalcon
Falco mexicanus	*	Prairie Falcon

Order: GALLIFORMES (Pheasants, Grouse, Ptarmigan and Turkey)

Family: PHASIANIDAE

Perdix perdix	*	Gray Partridge
Alectoris chukar	E	Chukar
Phasianus colchicus	*	Ring-necked Pheasant
Dendragapus canadensis	*	Spruce Grouse
Dendragapus obscurus	*	Blue Grouse
Lagopus lagopus	*	Willow Ptarmigan
Lagopus leucurus	*	White-tailed Ptarmigan
Bonasa umbellus	*	Ruffed Grouse
Centrocercus urophasianus	*	Sage Grouse
Tympanuchus cupido	E	Greater Prairie-Chicken
Tympanuchus phasianellus	*	Sharp-tailed Grouse
Meleagris gallopavo	*	Wild Turkey
Colinus virginianus	E	Northern Bobwhite

Order: GRUIFORMES (Rails, Coots and Cranes)

Family: RALLIDAE

Coturnicops noveboracensis	*	Yellow Rail
Rallus limicola	*	Virginia Rail
Porzana carolina	*	Sora
Fulica americana	*	American Coot

Family: GRUIDAE

Grus canadensis	*	Sandhill Crane
Grus grus	V	Common Crane
Grus americana	*	Whooping Crane

Order: CHARADRIIFORMES (Plovers, Sandpipers, Phalaropes, Jaegers, Gulls and Terns)

Family: CHARADRIIDAE

Pluvialis squatarola	M	Black-bellied Plover
Pluvialis dominica	M	Lesser Golden-Plover
Charadrius mongolus	V	Mongolian Plover
Charadrius alexandrinus	V	Snowy Plover
Charadrius semipalmatus	*	Semipalmated Plover
Charadrius melodus	*	Piping Plover
Charadrius vociferus	*	Killdeer
Charadrius montanus	*	Mountain Plover

Family: RECURVIROSTRIDAE

Himantopus mexicanus	*	Black-necked Stilt
Recurvirostra americana	*	American Avocet

Family: SCOLOPACIDAE

Tringa melanoleuca	*	Greater Yellowlegs
Tringa flavipes	*	Lesser Yellowlegs
Tringa solitaria	*	Solitary Sandpiper
Catoptrophorus semipalmatus	*	Willet
Heteroscelus incanus	V	Wandering Tattler
Actitis macularia	*	Spotted Sandpiper
Bartramia longicauda	*	Upland Sandpiper
Numenius borealis	V/M	Eskimo Curlew
Numenius phaeopus	M	Whimbrel
Numenius americanus	*	Long-billed Curlew
Limosa haemastica	M	Hudsonian Godwit
Limosa fedoa	*	Marbled Godwit
Arenaria interpres	M	Ruddy Turnstone
Aphriza virgata	V	Surfbird
Calidris canutus	M	Red Knot
Calidris alba	M	Sanderling
Calidris pusilla	M	Semipalmated Sandpiper
Calidris mauri	V/M	Western Sandpiper
Calidris minutilla	M	Least Sandpiper
Calidris fuscicollis	M	White-rumped Sandpiper
Calidris bairdii	M	Baird's Sandpiper
Calidris melanotos	M	Pectoral Sandpiper
Calidris acuminata	V/M	Sharp-tailed Sandpiper
Calidris alpina	M	Dunlin
Calidris ferruginea	V	Curlew Sandpiper
Calidris himantopus	M	Stilt Sandpiper
Eurynorhynchus pygmeus	V	Spoonbill Sandpiper
Tryngites subruficollis	M	Buff-breasted Sandpiper
Philomachus pugnax	V	Ruff
Limnodromus griseus	*	Short-billed Dowitcher
Limnodromus scolopaceus	M	Long-billed Dowitcher
Gallinago gallinago	*	Common Snipe
Phalaropus tricolor	*	Wilson's Phalarope
Phalaropus tobatus	*	Red-necked Phalarope
Phalaropus fulicaria	V	Red Phalarope

Family: LARIDAE

Stercorarius pomarinus	V	Pomarine Jaeger
Stercorarius parasiticus	M	Parasitic Jaeger
Stercorarius longicaudus	V	Long-tailed Jaeger
Larus pipixcan	*	Franklin's Gull
Larus minutus	V	Little Gull
Larus philadelphia	*	Bonaparte's Gull
Larus canus	*	Mew Gull
Larus delawarensis	*	Ring-billed Gull
Larus californicus	*	California Gull
Larus argentatus	*	Herring Gull
Larus thayeri	V	Thayer's Gull
Larus glaucoides	V	Iceland Gull
Larus glaucescens	V	Glaucous-winged Gull
Larus hyperboreus	V	Glaucous Gull
Larus marinus	V	Great Black-backed Gull
Rissa tridactyla	V	Black-legged Kittiwake
Xema sabini	V	Sabine's Gull
Sterna caspia	*	Caspian Tern
Sterna hirundo	*	Common Tern
Sterna paradisaea	M	Arctic Tern
Sterna forsteri	*	Forster's Tern
Chlidonias niger	*	Black Tern

Family: ALCIDAE

Cepphus grylle	V	Black Guillemot
Synthliboramphus antiquus	V	Ancient Murrelet

Order: COLUMBIFORMES (Doves and Pigeons)

Family: COLUMBIDAE

Columba livia	*	Rock Dove
Columba fasciata	V	Band-tailed Pigeon
Zenaida macroura	*	Mourning Dove
Ectopistes migratorius	E	Passenger Pigeon

Order: CUCULIFORMES (Cuckoos)

Family: CUCULIDAE

Coccyzus erythropthalmus	*	Black-billed Cuckoo
Coccyzus americanus	V	Yellow-billed Cuckoo

Order: STRIGIFORMES (Owls)

Family: TYTONIDAE

Tyto alba	V	Barn Owl

Family: STRIGIDAE

Otus kennicottii	V	Western Screech-Owl
Otus asio	V	Eastern Screech Owl
Bubo virginianus	*	Great Horned Owl
Nyctea scandiaca	WV	Snowy Owl
Surnia ulula	*	Northern Hawk Owl
Glaucidium gnoma	*	Northern Pygmy-Owl
Athene cunicularia	*	Burrowing Owl
Strix varia	*	Barred Owl
Strix nebulosa	*	Great Gray Owl
Asio otus	*	Long-eared Owl
Asio flammeus	*	Short-eared Owl
Aegolius funereus	*	Boreal Owl
Aegolius acadicus	*	Northern Saw-whet Owl

Order: CAPRIMULGIFORMES (Nightjars)

Family: CAPRIMULGIDAE

Chordeiles minor	*	Common Nighthawk
Phalaenoptilus nuttallii	V	Common Poorwill

Order: APODIFORMES (Swifts and Hummingbirds)

Family: APODIDAE

Cypseloides niger	*	Black Swift
Chaetura pelagica	*	Chimney Swift
Chaetura vauxi	V	Vaux's Swift

Family: TROCHILIDAE

Archilochus colubris	*	Ruby-throated Hummingbird
Archilochus alexandri	V	Black-chinned Hummingbird
Calypte anna	V	Anna's Hummingbird
Calypte costae	V	Costa's Hummingbird
Stellula calliope	*	Calliope Hummingbird
Selasphorus rufus	*	Rufous Hummingbird

Order: CORACIIFORMES (Kingfishers)

Family: ALCEDINIDAE

Ceryle alcyon	*	Belted Kingfisher

Order: PICIFORMES (Woodpeckers)

Family: PICIDAE

Melanerpes lewis	V	Lewis' Woodpecker
Melanerpes erythrocephalus	V	Red-headed Woodpecker
Sphyrapicus varius	*	Yellow-bellied Sapsucker
Sphyrapicus nuchalis	*	Red-naped Sapsucker
Sphyrapicus thyroideus	V	Williamson's Sapsucker
Picoides pubescens	*	Downy Woodpecker
Picoides villosus	*	Hairy Woodpecker
Picoides tridactylus	*	Three-toed Woodpecker
Picoides arcticus	*	Black-backed Woodpecker
Colaptes auratus	*	Northern Flicker
Dryocopus pileatus	*	Pileated Woodpecker

Order: PASSERIFORMES (Perching Birds)

Family: TYRANNIDAE - Flycatchers

Contopus borealis	*	Olive-sided Flycatcher
Contopus sordidulus	*	Western Wood-Pewee
Empidonax flaviventris	*	Yellow-bellied Flycatcher
Empidonax alnorum	*	Alder Flycatcher
Empidonax traillii	*	Willow Flycatcher
Empidonax minimus	*	Least Flycatcher
Empidonax hammondii	*	Hammond's Flycatcher
Empidonax oberholseri	*	Dusky Flycatcher
Empidonax occidentalis	*	Cordilleran Flycatcher
Sayornis phoebe	*	Eastern Phoebe
Sayornis saya	*	Say's Phoebe
Myiarchus crinitus	*	Great Crested Flycatcher
Tyrannus verticalis	*	Western Kingbird
Tyrannus tyrannus	*	Eastern Kingbird
Tyrannus forficatus	V	Scissor-tailed Flycatcher

Family: ALAUDIDAE - Larks

Eremophila alpestris	*	Horned Lark

Family: HIRUNDINIDAE - Swallows

Progne subis	*	Purple Martin
Tachycineta bicolor	*	Tree Swallow
Tachycineta thalassina	*	Violet-green Swallow
Stelgidopteryx serripennis	*	Northern Rough-winged Swallow
Riparia riparia	*	Bank Swallow
Hirundo pyrrhonota	*	Cliff Swallow
Hirundo rustica	*	Barn Swallow

Family: CORVIDAE - Jays, Crows and Allies

Perisoreus canadensis	*	Gray Jay
Cyanocitta stelleri	V	Steller's Jay
Cyanocitta cristata	*	Blue Jay
Nucifraga columbiana	*	Clark's Nutcracker
Pica pica	*	Black-billed Magpie
Corvus brachyrhynchos	*	American Crow
Corvus corax	*	Common Raven

Family: PARIDAE - Chickadees

Parus atricapillus	*	Black-capped Chickadee
Parus gambeli	*	Mountain Chickadee
Parus hudsonicus	*	Boreal Chickadee
Parus rufescens	V	Chestnut-backed Chickadee

Family: SITTIDAE - Nuthatches

Sitta canadensis	*	Red-breasted Nuthatch
Sitta carolinensis	*	White-breasted Nuthatch
Sitta pygmaea	V	Pygmy Nuthatch

Family: CERTHIIDAE - Creepers

Certhia americana	*	Brown Creeper

Family: TROGLODYTIDAE - Wrens

Salpinctes obsoletus	*	Rock Wren
Thryothorus ludovicianus	V	Carolina Wren
Troglodytes aedon	*	House Wren
Troglodytes troglodytes	*	Winter Wren
Cistothorus platensis	*	Sedge Wren
Cistothorus palustris	*	Marsh Wren

Family: CINCLIDAE - Dipper

Cinclus mexicanus	*	American Dipper

Family: MUSCICAPIDAE - Kinglets, Bluebirds and Thrushes

Regulus satrapa	*	Golden-crowned Kinglet
Regulus calendula	*	Ruby-crowned Kinglet
Polioptila caerulea	V	Blue-gray Gnatcatcher
Oenanthe oenanthe	V	Northern Wheatear
Sialia sialis	V	Eastern Bluebird
Sialia mexicana	*	Western Bluebird
Sialia currucoides	*	Mountain Bluebird
Myadestes townsendi	*	Townsend's Solitaire
Catharus fuscescens	*	Veery
Catharus minimus	*	Gray-cheeked Thrush
Catharus ustulatus	*	Swainson's Thrush
Catharus guttatus	*	Hermit Thrush
Turdus migratorius	*	American Robin
Ixoreus naevius	*	Varied Thrush

Family: MIMIDAE - Catbirds and Thrashers

Dumetella carolinensis	*	Gray Catbird
Mimus polyglottos	*	Northern Mockingbird
Oreoscoptes montanus	*	Sage Thrasher
Toxostoma rufum	*	Brown Thrasher
Toxostoma bendirei	V	Bendire's Thrasher

Family: MOTACILLIDAE - Pipits

Anthus rubescens	*	American Pipit
Anthus spraguei	*	Sprague's Pipit

Family: BOMBYCILLIDAE - Waxwings

Bombycilla garrulus	*	Bohemian Waxwing
Bombycilla cedrorum	*	Cedar Waxwing

Family: LANIIDAE - Shrikes

Lanius excubitor	*	Northern Shrike
Lanius ludovicianus	*	Loggerhead Shrike

Family: STURNIDAE - Starlings

Sturnus vulgaris	*	European Starling

Family: VIREONIDAE - Vireos

Vireo solitarius	*	Solitary Vireo
Vireo gilvus	*	Warbling Vireo
Vireo philadelphicus	*	Philadelphia Vireo
Vireo olivaceus	*	Red-eyed Vireo

Family: EMBERIZIDAE -Wood-Warblers, Buntings, Sparrows, Blackbirds, and Allies

Subfamily: Parulinae

Vermivora peregrina	*	Tennessee Warbler
Vermivora celata	*	Orange-crowned Warbler
Vermivora ruficapilla	*	Nashville Warbler
Parula americana	V	Northern Parula
Dendroica petechia	*	Yellow Warbler
Dendroica pensylvanica	*	Chestnut-sided Warbler
Dendroica magnolia	*	Magnolia Warbler
Dendroica tigrina	*	Cape May Warbler
Dendroica caerulescens	V	Black-throated Blue Warbler
Dendroica coronata	*	Yellow-rumped Warbler
Dendroica nigrescens	V	Black-throated Gray Warbler
Dendroica townsendi	*	Townsend's Warbler
Dendroica virens	*	Black-throated Green Warbler
Dendroica fusca	*	Blackburnian Warbler
Dendroica pinus	V	Pine Warbler
Dendroica palmarum	*	Palm Warbler
Dendroica castanea	*	Bay-breasted Warbler
Dendroica striata	*	Blackpoll Warbler
Mniotilta varia	*	Black-and-white Warbler
Setophaga ruticilla	*	American Redstart
Seiurus aurocapillus	*	Ovenbird
Seiurus noveboracensis	*	Northern Waterthrush
Oporornis formosus	V	Kentucky Warbler
Oporornis agilis	*	Connecticut Warbler
Oporornis philadelphia	*	Mourning Warbler
Oporornis tolmiei	*	MacGillivray's Warbler
Geothlypis trichas	*	Common Yellowthroat
Wilsonia pusilla	*	Wilson's Warbler
Wilsonia canadensis	*	Canada Warbler
Icteria virens	*	Yellow-breasted Chat

Subfamily: Thraupinae

Piranga olivacea	V	Scarlet Tanager
Piranga ludoviciana	*	Western Tanager

Subfamily: Cardinalinae

Cardinalis cardinalis	V	Northern Cardinal
Pheucticus ludovicianus	*	Rose-breasted Grosbeak
Pheucticus melanocephalus	*	Black-headed Grosbeak
Passerina amoena	*	Lazuli Bunting
Passerina cyanea	V	Indigo Bunting
Spiza americana	V	Dickcissel

Subfamily: Emberizinae

Pipilo erythrophthalmus	*	Rufous-sided Towhee
Aimophila cassinii	V	Cassin's Sparrow
Spizella arborea	*	American Tree Sparrow
Spizella passerina	*	Chipping Sparrow
Spizella pallida	*	Clay-colored Sparrow
Spizella breweri	*	Brewer's Sparrow
Pooecetes gramineus	*	Vesper Sparrow
Chondestes grammacus	*	Lark Sparrow
Calamospiza melanocorys	*	Lark Bunting
Passerculus sandwichensis	*	Savannah Sparrow
Ammodramus bairdii	*	Baird's Sparrow
Ammodramus savannarum	*	Grasshopper Sparrow
Ammodramus leconteii	*	Le Conte's Sparrow
Ammodramus caudacutus	*	Sharp-tailed Sparrow
Passerella iliaca	*	Fox Sparrow
Melospiza melodia	*	Song Sparrow
Melospiza lincolnii	*	Lincoln's Sparrow
Melospiza georgiana	*	Swamp Sparrow
Zonotrichia albicollis	*	White-throated Sparrow
Zonotrichia atricapilla	*	Golden-crowned Sparrow
Zonotrichia leucophrys	*	White-crowned Sparrow
Zonotrichia querula	M	Harris' Sparrow
Junco hyemalis	*	Dark-eyed Junco
Calcarius mccownii	*	McCown's Longspur
Calcarius lapponicus	M	Lapland Longspur
Calcarius pictus	M	Smith's Longspur
Calcarius ornatus	*	Chestnut-collared Longspur
Plectrophenax nivalis	WV	Snow Bunting

Subfamily: Icterinae

Dolichonyx oryzivorus	*	Bobolink
Agelaius phoeniceus	*	Red-winged Blackbird
Sturnella magna	V	Eastern Meadowlark
Sturnella neglecta	*	Western Meadowlark
Xanthocephalus xanthocephalus	*	Yellow-headed Blackbird
Euphagus carolinus	*	Rusty Blackbird
Euphagus cyanocephalus	*	Brewer's Blackbird
Quiscalus quiscula	*	Common Grackle
Molothrus ater	*	Brown-headed Cowbird
Icterus galbula	*	Northern Oriole

Family: FRINGILLIDAE (Finches and Grosbeaks)

Fringilla montifringilla	V	Brambling
Leucosticte arctoa	*	Rosy Finch
Pinicola enucleator	*	Pine Grosbeak
Carpodacus purpureus	*	Purple Finch
Carpodacus cassinii	*	Cassin's Finch
Carpodacus mexicanus	V	House Finch
Loxia curvirostra	*	Red Crossbill
Loxia leucoptera	*	White-winged Crossbill
Carduelis flammea	*	Common Redpoll
Carduelis hornemanni	WV	Hoary Redpoll
Carduelis pinus	*	Pine Siskin
Carduelis tristis	*	American Goldfinch
Coccothraustes vespertinus	*	Evening Grosbeak

Family: PASSERIDAE (Weaver Finches)

Passer domesticus	*	House Sparrow

SPECIES WHOSE STATUS IS HYPOTHETICAL

Dendrocygna bicolor	Fulvous Whistling-Duck
Chen canagica	Emperor Goose
Gymnogyps californianus	California Condor
Elanoides forficatus	American Swallow-tailed Kite
Lagopus mutus	Rock Ptarmigan
Tringa erythropus	Spotted Redshank
Arenaria melanocephala	Black Turnstone
Calidris ruficollis	Rufous-necked Stint
Scolopax minor	American Woodcock
Pagophila eburnea	Ivory Gull
Caprimulgus vociferus	Whip-poor-will
Aeronautes saxatilis	White-throated Swift
Picoides albolarvatus	White-headed Woodpecker
Pica nuttalli	Yellow-billed Magpie
Catherpes mexicanus	Canyon Wren
Vermivora virginiae	Virginia's Warbler
Amphispiza bilineata	Black-throated Sparrow

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Author's Address:
3903 - 112A Street, Edmonton, Alberta T6J 2K7.

Cover Photo: Wolf pups play. (Photo: Monty Sloan)

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The Federation of Alberta Naturalists is composed of natural history clubs from across the province. The aims of the Federation are:

(a) To encourage among all Albertans, by all means possible, an increase in their knowledge of natural history and understanding of ecological processes;
(b) To promote an increase in the exchange of information and views between natural history clubs and societies in Alberta;
(c) To foster and assist in the formation of additional natural history clubs and societies in Alberta;
(d) To promote the establishment of natural areas and nature reserves, to conserve and protect species, communities or other features of interest;
(e) To organize, or coordinate, symposia, conferences, field meetings, nature camps, research, and other activities whether of a similar or dissimilar nature;
(f) To provide the naturalists of Alberta with a forum in which questions relating to the conservation of the natural environment may be discussed so that united positions can be developed on them, and to provide the means of translating these positions into appropriate actions.

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Alberta Christmas Bird Counts, January 30,
Andrew Slater. 152 Oakside Circle S.W.,
Calgary, AB T2V 4H2.
May Species Count for Birds and Mammals, July 15,
F.A.N., Box 1472, Edmonton, AB T5J 2N5.
May Species Count-Plants, July 15,
J. Derek Johnson, Northern Forestry Centre,
5320 - 122 St., Edmonton, AB T6H 3S5.

Compiler cooperation is greatly appreciated.

President's Page

What's happening next door? - in the Saskatchewan Natural History Society. This year I had the opportunity to visit the S.N.H.S. 1991 spring meet. As well, we had a visit from Frank Switzer, S.N.H.S. president and Curt Frank Schroeder, S.N.H.S. executive director, at our F.A.N. fall meeting in Cypress Hills near Medicine Hat.

S.N.H.S. has been around since the 40s when the Blue Jay was started. The Blue Jay is a quality bulletin much like the Alberta Naturalist, publishing natural history observations such as the Christmas Bird Counts and May Species Counts. It has more anecdotal natural history observations by rural observers. In addition S.N.H.S. publishes the Blue Jay News three times a year. This publication gives upcoming events and deals with conservation issues, and usually has several pages on club events throughout the province. S.N.H.S. has over 1600 members and is the main voice for conservation in their province. F.A.N. has over 500 members and is one of several conservation groups in the province, the most prominent ones being the Alberta Wilderness Association (AWA) and the Canadian Parks, and Wildnerss Society (CPAWS). S.N.H.S. has been a club in its own right since the 1940s, whereas F.A.N. is a federation of twelve clubs in the Alberta.

Frank Switzer, president of S.N.H.S. and Curt Schroeder, executive director spoke to our F.A.N. board meeting and gave us an idea of the structure of S.N.H.S. and the duties of the executive director. F.A.N. does not have one of these yet so we were especially interested. Some of the duties of their executive director are to oversee two part-time staff, an administrative secretary and a membership secretary, and to prepare a budget which is now at $341,000. About 50% of the budget goes to two important committees and their projects, the Endangered Species Committee and the Conservation Committee. Some projects S.N.H.S.'s Endangered species Committee is working on are Operation Burrowing Owl and Piping Plover surveys. The Conservation Committee works on the Heritage Marsh program. It has also done some land acquisition such as a 35-acre elm forest near Hudson's Bay, Sask. (the local club does the maintenance). They have also leased some land such as fens near Qu'Appelle and land in a prairie dog colony. Sometimes these initiatives are in conjunction with other government agencies or the Saskatchewan Wildlife Federation (SWF) which is equivalent to the Alberta Fish and Game Association. Curt feels that by becoming involved in some of these initiatives, that S.N.H.S. has found a place in the conservation movement, and it becomes easier to follow- up in the future.

Don Stiles

Report on S.N.H.S. Meeting

Don Stiles

The Saskatchewan Natural History Society spring meet was June 7-9, 1991 at the Great Sand Hills. This was strictly a fun event with over 100 people attending. On Friday evening there was a slide show on sand dunes. There were three half day trips to different parts of the dune area - to an active ranch, to an active dune area, and to an active gas well drilling area, where they showed us some rehabilitation efforts. These involved such things as careful placement of wells, crimping in flax straw, and putting up snow fences, all to prevent erosion. Although the Great Sand Hills are a sandy area, only a few areas have active sand dunes (just like a snowdrift). These are off limits to oil and gas exploration. The S.N.H.S. spring meet was a tourism boom for the towns of Sceptre which hosted the Friday evening event, and Lancer which hosted a Saturday evening banquet.

Some interesting bird species seen not common or not seen in the Calgary area were: Rufous-sided Towhee, Lark Bunting, Loggerhead Shrike, Lark Sparrow and Ferruginous Hawk. The most interesting common plant species were Sand Dock and Ball Cactus. Some of our group saw a Western Kingbird chasing a Great Horned Owl with a Northern Oriole following. The kingbird seemed to be riding the owl's back. Another group saw a caterpillar trying to cross a large sand dune, against the wind, yet. On the way home I saw an antelope fawn suckling and was able to photograph the scene.

Author's Address:
20 Lake Wapta Rise, S.E., Calgary, Alberta T2J 2M9.

Amphibians and Reptiles of the Calgary Area

Anthony P. Russell, Dept. of Biological Sciences, University of Calgary, Calgary Alberta T2N 1N4. Aaron M. Bauer, Biology Dept., Villanova University, Villanova, Pennsylvania 19085, USA.

Introduction

Ten species of amphibians and eight species of reptiles are know to occur in Alberta. Of these, six of the amphibians and four of the reptiles have ranges that include Calgary itself (at least historically, although current ranges may be less extensive). All eighteen species have ranges that are within a few hours drive of Calgary; the southern part of Alberta being by far the richest region in terms of species diversity. This relative richness can be associated chiefly with climatic factors, both historical and current. The maps and key will help identify amphibian and reptile inhabitants of the Calgary area. Figure 2 shows the biomes of Alberta, and Table 1 summarizes the distribution of amphibians and reptiles in the province by biome.

Factors influencing the distribution of reptiles and amphibians

The most important parameters determining the suitability of habitat for amphibians and reptiles are temperature and water availability. These determine the distribution of animals via the stresses they place on their physiology and breeding potential. Biotic features of the environment (such as food availability and predator density) are also important but are secondary rather than primary determinants of distribution, establishing how successfully the animals can cope within the absolute limits established by the abiotic factors.

During the late pleistocene (beginning about 35,000 years ago), the province of Alberta was greatly influenced by glaciation. A series of glacial and interglacial periods had characterized the preceding 965,000 years, but had not directly affected this region of western Canada. During the glacial period, all of Alberta except the higher elevations of the Rocky Mountains and the summit of the Cypress Hills was covered by ice. The most recent retreat of the glaciers began approximately 12,000 years ago. Essentially all plants and animals in Alberta were eliminated or pushed far to the south during the glacial periods. Consequently, present distributions of the biota have been determined only within the relatively short time since the retreat. For amphibians and reptiles, the time is shorter still, since most species would not have been able to occupy the newly ice-free environment until after vegetational communities and arthropods had become re-established. Further, the lower temperatures created by the retreating edges of the glaciers formed a buffer zone not suitable for occupation by cold-blooded vertebrates.

The south-eastern part of the province (the prairie biome) has the warmest temperatures and lowest rainfall, and it is in this region that amphibians and reptiles are most diverse. The diversity if expressed to its fullest in the shortgrass plains and it is here that one finds those species that are typically arid adapted. The richness of this region is reflective of the herpetofauna of adjacent parts of the United States. The arid and semi-arid states of the Rockies and northern Great Plains have been the major source areas for Albertan amphibians and reptiles, and taxa with reasonably wide tolerances have moved into the prairies of Alberta. Species that occur elsewhere in the province tend to be extreme generalists, or cool/moist adapted animals. They may have moved north along a western mountainous corridor, or followed the retreating glaciers northward, remaining in a cooler climatic belt, such as the modern boreal forest.

Reptiles

Painted turtle	*Chrysemys picta*
Short-horned lizard	*Phrynosoma douglassi*
Western hog-nosed snake	*Heterodon nasicus*
Bull snake	*Pituophis melanoleucus*
Wandering garter snake	*Thamnophis elegans*
Plains garter snake	*Thamnophis radix*
Red-sided garter snake	*Thamnophis sirtalis*
Prairie rattlesnake	*Crotalus viridis*

Seven of the eight Alberta reptile species are found in the prairie region. Three of these (painted turtle, short-horned lizard, and western hognose snake) are absolutely restricted to this region and the low elevations of the Cypress Hills. The bull snake and prairie rattlesnake extend out of the prairies only marginally, and may be considered typical prairie species. The garter snakes are widely distributed throughout the province. Each of the three species, however, is centered in a different region. The plains garter snake, which reaches its western Canadian limit in Alberta, is seen in the prairie region, and is marginally distributed in other biomes. The wandering garter snake is also found chiefly in the south, but its range extends into the mountains in the west. Its distribution in the north is poorly documented, but it seems to be largely absent from the boreal forest, where it is replaced by the red-sided garter snake, a chiefly northern, cool-adapted form. The red-sided garter snake is the only Alberta reptile that is not typical of the prairies. Indeed, its biology is that of an animal specialized for living in very cold regions with short activity seasons.

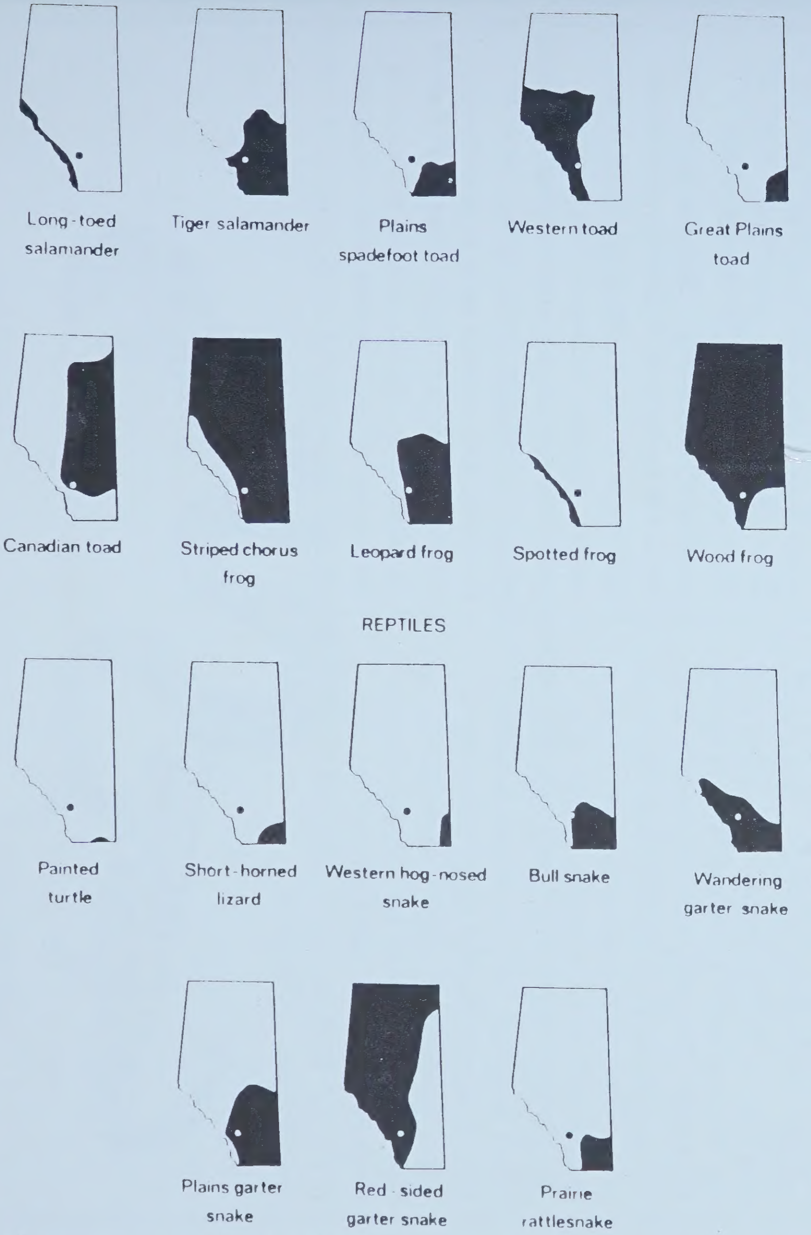

Long-toed salamander
Tiger salamander
Plains spadefoot toad
Western toad
Great Plains toad
Canadian toad
Striped chorus frog
Leopard frog
Spotted frog
Wood frog
REPTILES
Painted turtle
Short-horned lizard
Western hog-nosed snake
Bull snake
Wandering garter snake
Plains garter snake
Red-sided garter snake
Prairie rattlesnake

Figure 1. Approximate distribution of Alberta amphibians and reptiles.

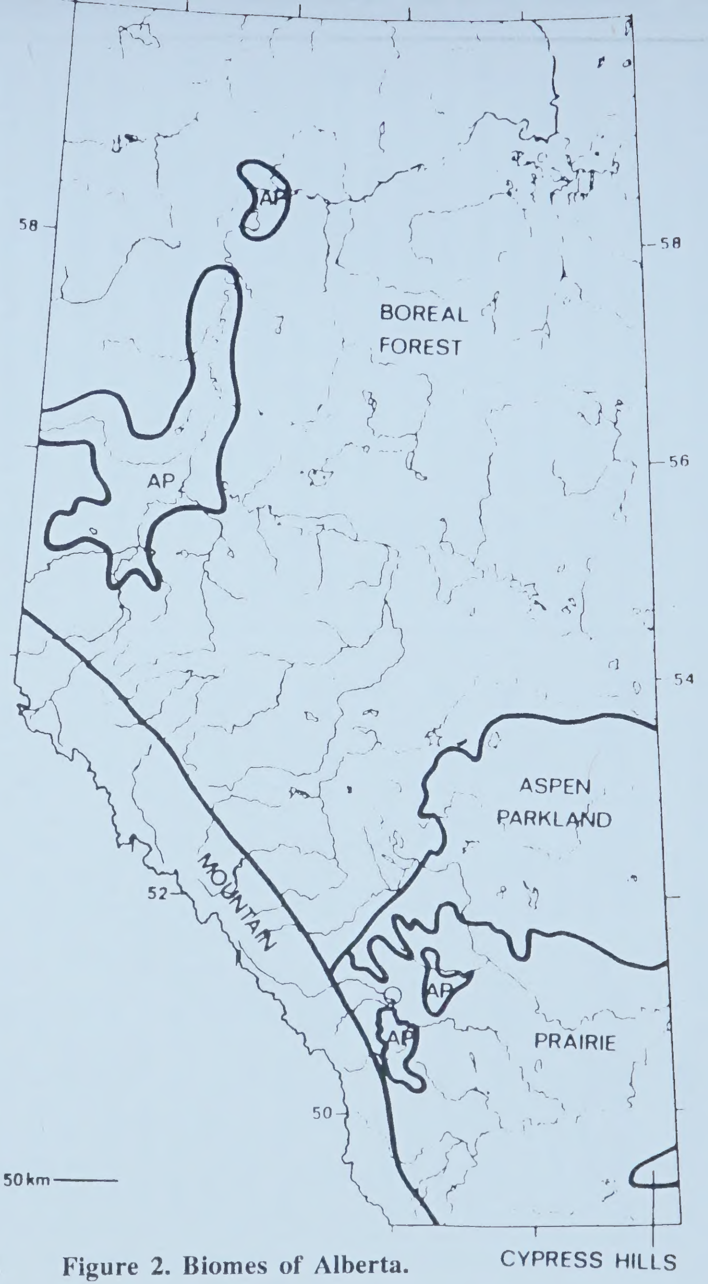

58
58
56
54
52
50
BOREAL FOREST
AP
AP
ASPEN PARKLAND
AP
AP
PRAIRIE
MOUNTAIN
50km
CYPRESS HILLS

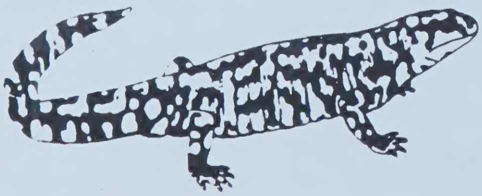
Figure 2. Biomes of Alberta.

Amphibians

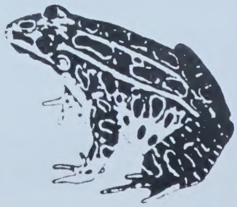
Plains spadefoot toad	*Scaphiopus bombifrons*
Great plains toad	*Bufo cognatus*
Western toad	*Bufo boreas*
Canadian toad	*Bufo hemiophrys*
Long-toed salamander	*Ambystoma tigrinum*
Spotted frog	*Rana pretiosa*
Striped chorus frog	*Pseudocris triseriata*
Leopard frog	*Rana pipiens*
Wood frog	*Rana sylvatica*

Two species of Alberta amphibians are restricted to the prairies: the plains spadefoot toad and the great plains toad. Both species require sandy soil for burrowing, and intermittent periods of heavy rainfall and high summer temperatures for successful breeding. The two remaining species of toad are generally absent from the prairies but occur to some extent in the other biomes. The western toad occurs in the aspen parkland, boreal forest and mountain regions. In general it is most common in the western parts of the province. The Canadian toad is chiefly an eastern species and, like the red-sided garter snake, is a northern specialist. The long-toed salamander and the spotted frog are restricted to the mountains. They prefer cooler waters and are representatives of montane groups that occupy high elevations throughout western North America. Within the mountains several aquatic habitat types (differing in water temperature, depth, permanence and flow rate) occur, and the specific distributions of these and other amphibians that reach the Rockies are determined by these microhabitat differences.

Tiger salamanders are chiefly animals of the prairies and aspen parkland. This species reaches the borders of the Rockies and has scattered populations in the boreal forest. Typically this species occupies burrows, so the soils of the south are particularly suitable for it. Its distribution in the north is confused somewhat by the availability of artificial breeding sites (dugouts, for example) and the artificial introduction of the larvae as bait by fishermen. The striped chorus frog does not occur at high elevations, but is common throughout the rest of the province, from the prairies to Lake Athabasca. It is a widespread species in much of North America and has broad tolerance levels. It appears to be able to utilize ponds or marshes wherever they occur. Leopard frogs are now disappearing in Alberta (as are many amphibian species worldwide), but were formerly common chiefly in the prairie regions and the Cypress Hills. Records, however, are scattered and specimens have been reported from as far north as the border of the Northwest Territories. The distribution in the north of Alberta is poorly understood and needs to be investigated more thoroughly. Finally, the wood frog is a non-prairie dweller. Like some of the previously mentioned species, it is a cool-adapted specialist and is even able to withstand freezing of its body fluids. It occurs in all of the remaining biomes and its presence in the region of the Cypress Hills illustrates the early post-glacial connection to the west.



Tiger salamander



Leopard frog

Table 1. Distribution of Alberta amphibians and reptiles by biome.

	Prairie	Aspen Parkland	Boreal Forest	Mountain	Cypress Hills[1]
Amphibians					
Long-toed salamander				X	
Tiger salamander	X	X	p[2]	X	
Plains spadefoot toad	X				
Western toad	P	X	X	X	
Great plains toad	X				
Canadian toad	P	X	X		
Striped chorus frog	X	X	X	P	X
Leopard frog	X	X	X	P	X
Spotted frog				X	
Wood frog	P	X	X	X	
Total amphibians	5	6	5	5	2
Reptiles					
Painted turtle	X				
Short-horned lizard	X				X
Western hog-nosed snake	X				X
Bull snake	X	P		P	
Wandering garter snake	X	P	P	X	
Plains garter snake	X	X	P	P	P
Red-sided garter snake	P	X	X	X	
Prairie rattlesnake	X	P			P
Total reptiles	7	2	1	2	2
Overall totals	12	8	6	7	4

[1] Since the Cypress Hills region is rather small and has not been well-studied it may be under-represented in terms of the species recorded.

[2] p * Peripheral

Key to the Adult Amphibians and Reptiles of Alberta

(This key includes four species, indicated by asterisks (*), that have not yet been confirmed for Alberta but may occur in the province).

1.	Skin covered with scales	Reptiles 12
	Skin naked	Amphibians 2
2.	Body elongate, fore and hindlimbs about equal in length	3
	Body short, hindlimbs much longer than forelimbs	4
3.	Digits short and stubby, no mid-dorsal stripe	Tiger salamander
	Digits slender and elongate, mid-dorsal stripe or blotches	Long-toed salamander
4.	Fifth toe of hind foot broader than other toes	Tailed frog
	Fifth toe of hind foot not broader than other toes	5
5.	Parotid glands present	True Toads 6
	Parotid glands absent	8
6.	Prominent raised area ("boss") between eyes	Canadian toad
	No boss between eyes	7
7.	Cranial crests prominent	Great plains toad
	Cranial crest weakly developed	Western toad
8.	Pupil vertical, black "spade" on heel	Plains spadefoot toad
	Pupil not vertical, no "spade" on heel	9
9.	Belly granular, small disks on tips of digits	Striped chorus frog
	Belly smooth, no disks on tips of digits	10
10.	Conspicuous dark eye mask	Wood frog
	No dark eye mask	11
11.	Belly white	Leopard frog
	Belly red, yellow or orange	Spotted frog
12.	Carapace (shell) present	Turtles 13
	Carapace not present	14
13.	Carapace keeled; head very large	Common Snapping Turtle*
	Carapace smooth; head small, retractable	Painted turtle
14.	Legs present	Short-horned lizard
	Legs absent	Snakes 15
15.	Tail with rattle, head distinctly triangular	Prairie rattlesnake
	Tail without rattle, head not expanded laterally	16
16.	Chin shields all small	Rubber boa*
	Some chin shields enlarged	17
17.	"Nose" (rostral) enlarged, upturned	Western hog-nosed snake
	Rostral not enlaged or upturned	18
18.	Dorsal scales keeled	19
	Dorsal scales smooth	Yellow-bellied Racer*
19.	Four prefrontal scales	Bull Snake
	Two prefrontal scales	Garter snakes 20
20.	Lateral stripes on 3rd and 4th rows of scales	Plains garter snake
	Lateral stripes on 2nd and 3rd rows of scales	21
21	Eight upper labials, both pairs of chin shields approximately equal	Wandering garter snake
	Seven upper labials, posterior chin shields longer than anterior	Red-sided garter snake

*The Common snapping turtle (Chelydra serpentina), and Yellow-bellied racer *(Coluber constrictor)* have been reported from areas adjacent to the southeast corner of Alberta; the tailed frog *(Ascaphus truei)* and the Rubber boa (Charina bottae) have been found near the southwest corner of the province.

(Reprinted from Pica 11:2)

The Alberta Birds of Prey Centre

Pat and Dick Clayton

During late September we drove across southern Alberta and stopped in to see the new Alberta Birds of Prey Centre at Coaldale near Lethbridge. It is a brand new facility; the dream-come-true of Colin Weir and Wendy Slator. With the aid of various grants and the active participation of the town of Coaldale, a low lying piece of land has been turned into waterbird habitat. Around the lagoons stand the visitor centre and the numerous shelters for the birds of prey. There is also a large area for free aerial exercise and a rehabilitated historic school house which will provide classroom space for visiting groups.

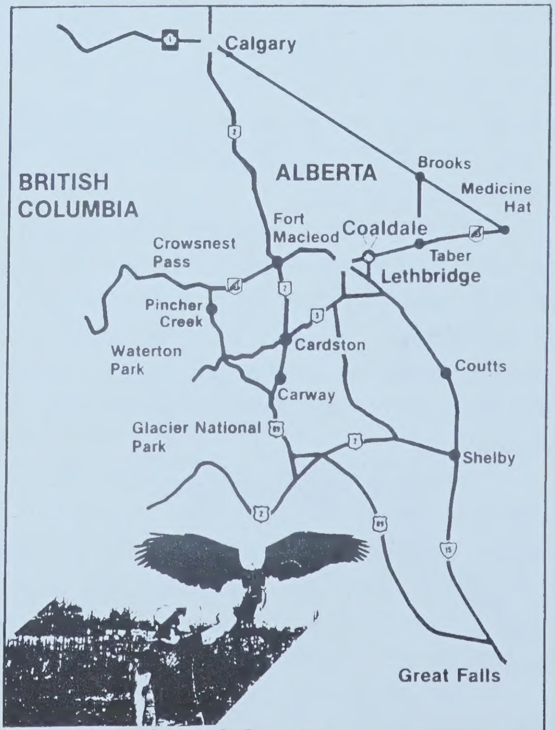
Colin's life has always centred around birds and this new Centre is part of a large network of such dedicated people and their places that take care of injured and endangered avian species. Some of the birds we met during our visit are there for life; blind, deaf, crippled, or too habituated to humans, to ever survive in the wild. Others are regaining their strength after accidents and will be released. Still others, like the Burrowing Owls in their habitat cages, are there for breeding purposes.

Pat Clayton and Colin Weir with an immature Eagle. (Photo: Pat Clayton)

Authors' Address:
10624 - 153 Avenue, Edmonton, Alberta T5X 5R8.

The attitude of the volunteers working at the Centre and their interaction with other casual visitors is remarkable and mirrors the dedication of Colin and Wendy. It was interesting to us to see the thrilled response of a family to a Red-tailed Hawk coming in low to the lure and to see the dawning realization that this bird would be free and wild if it hadn't been hurt by man. Good teaching done in a casual manner.

If you are in the Lethbridge area try not to miss the Birds of Prey Centre at Coaldale. It is well worth a visit. For information about this new facility, write to: The Alberta Birds of Prey Centre, P.O. Box 1494, Coaldale, Alberta T0K 0L0.



Map: Location of Coaldale.

Project FeederWatch Counts Birds Killed in Window Collisions

Erica H. Dunn

What's ubiquitous, nearly invisible, and deadly to birds? The windows on your house. Birds often fly full tilt into unseen windows; some are killed, others are left stunned and vulnerable to predators. A recent study by Project FeederWatch provides insight as to just how many birds meet death by collision each year.

Project FeederWatch, launched in 1987, is a long term survey of the numbers and kinds of birds at backyard feeders in North America. Over 7,000 volunteers participated in 1990-91. Scientists at the Cornell Laboratory of Ornithology in Ithaca, New York, and Long Point Bird Observatory, Port Rowan, Ontario--the organizations that sponsor FeederWatch--use the data to track changes in resident songbird populations.

During the winter of 1989-90 FeederWatchers recorded the number of birds killed in window collisions at their homes. Nine percent of all FeederWatchers reported finding one or more window-killed birds, with an average of 2.0 deaths per home reporting kills.

Homes where window kills occurred typically had above-average numbers of bird feeders (and therefore large numbers of birds visiting). Window kill sites were usually located in rural areas close to woods and open water, and the yards had plenty of vegetation.

FeederWatchers documented 66 different species of birds killed in window strikes. Most were common feeder visitors: Pine Siskin, American Goldfinch, and Dark-eyed Junco together accounted for almost 44 percent of all window-killed birds.

The most frequently killed species died approximately in proportion to their abundance at feeders. A few species, however, seemed to be unusually unlucky. For example, Purple Finches make up 4.1 percent of all window-killed birds but accounted for only 1.8 percent of all the birds counted at FeederWatch sites.

All of the over-represented window-killed birds (Pine Grosbeak, Purple Finch, Downy Woodpecker, Hermit Thrush, and Cedar Waxwing) are woodland or tree-loving species; thus, these birds are often present at the homes FeederWatch has identified as being prone to window strikes.

Most window strikes probably happen because a bird just isn't paying attention. FeederWatchers don't always witness the events leading up to a window strike. But in 16 percent of the window strikes reported, observers saw a panic-stricken bird escaping from a raptor. In an additional 1.5 percent of window kills, the victims had been chased by other birds or startled by loud noises or passing cars.

The exact number of birds killed in window strikes each year is difficult to determine. Predators and scavengers quickly remove stunned or dead birds; in this study, for example, some FeederWatchers saw hawks grab birds as they bounced off the window. But extrapolating from the 1989-90 study period, scientists estimate that 0.55 birds per FeederWatch home per year are killed in window collisions.

How does that compare to other window kill studies? To date, the best estimate of total annual window-strike deaths in the United States comes from Dr. Daniel Klem at Southern Illinois University. He believes that one to ten birds are killed annually for every building in the country, for a total of 95 to 950 million victims. Our data suggest Klem's lower estimate may be the more realistic one.

Still, ninety-five million birds is one or two percent of the estimated total autumn population of birds in the United States-not a trivial number. We should strive to prevent window kills, particularly because the birds that die have been lured close to our houses by our feeders.

Recently, Klem also published the results of the first rigorous study of window strike-prevention devices: the hawk silhouettes, wind-socks, one-way films, and screens that are sold by many bird feeding supply outlets. Under Klem's experimental conditions, these commonly used deterrents did not reduce window strikes. The most effective window guard turned out to be a closely spaced grid of adhesive strips.

Few people, however, want to obscure their windows to this extent. FeederWatcher participants who have had problems with window strikes recommend a less intrusive contraption: black plastic garden-protection netting mounted on frames installed about a foot away from the window. At one FeederWatch home where as many as seven collisions a day had occurred, bird mortality went down to a total of only nine over the entire winter after the netting was installed.

Project FeederWatch coordinator Dr. Erica H. Dunn, presented the data on window strikes at the 1991 meeting of the Association of Field Ornithologists; an article is being prepared now for publication in an ornithology research journal.

You can be a part of Project FeederWatch! To register for the 1991-92 season, send $12 to: Project FeederWatch, Cornell Lab of Ornithology, 159 Sapsucker Woods Road, Ithaca, New York 14850. (Please make cheques payable to Cornell Lab of Ornithology).

Table 1. Birds killed at FeederWatch homes in winter, 1989-90. (Total number of birds=945).

SPECIES	% of all window kills	% of all birds seen
Pine Siskin	16.9	11.1
American Goldfinch	13.29	13.9
Dark-eyed Junco	12.9	8.6
Northern Cardinal	8.8	4.1
Mourning Dove	5.5	6.4
House Finch	5.1	7.0
Purple Finch	4.1	1.8
Evening Grosbeak	3.7	3.6
Black-capped Chickadee	3.2	3.3
Pine Grosbeak	2.1	0.6
White-throated Sparrow	1.9	1.8
Common Redpoll	1.6	3.2
Downy Woodpecker	1.5	1.3
House Sparrow	1.5	6.3
Tufted Titmouse	1.1	1.6
Hermit Thrush	1.1	<0.5
Cedar Waxwing	1.1	<0.5
Cassin's Finch	1.1	0.6
Blue Jay	1.0	2.5
American Robin	1.0	0.6
Red-winged Blackbird	0.6	2.1
Chipping Sparrow	0.3	2.3
Common Grackle	0.3	1.4
European Starling	0.1	2.2
43 other species	<1.0	<1.0 ea

Author's Address:
30 Davidson Road, Aurora, Ontario L4G 2B1.

Park Wardens Step Up Anti-poaching Campaign

As the illegal trafficking, possession and commercialization of wildlife and wildlife parts becomes an increasing concern, Jasper National Park wardens are attacking the problem with modern law enforcement and scientific techniques. Armed with cameras, physical marking techniques and DNA fingerprinting, they are augmenting their usual boundary and roadside patrols.

This is the first year of a five-year project in which wardens are concentrating efforts on a thorough photo inventory and marking program on the park's trophy elk and bighorn sheep. According to park employee Mike Briggs, "We are determining the best tools for preventing poaching, and developing a routine operational way of tackling the problem." They are also meticulously preparing themselves to be able to prove in court that a particular animal was taken from the park.

Mug shots of trophy and near trophy-aged elk and bighorn sheep will be taken at several different angles and catalogued for future reference. Colour differences, scars, individual markings and horn and antler configuration can all help identify animals. Since no two elk's antlers are exactly the same, the information can be used like fingerprints for positive identification.

Sheep horns, too, show individual differences in annual growth rings, brooming, chipping and splitting. Specific sheep will be traced and photographed over several years to keep a detailed record of consistent features, as well as yearly changes in the horns. This careful documentation will help park wardens assemble evidence about horn growth over many years, and use the information for prosecution purposes.

Elk and sheep will also be filmed on video, particularly when they are in groups. Such footage can be used to determine if a bull elk or bighorn ram normally found with the herd is missing. In 1990, a tourist's video of a herd of elk near a campground was used in an investigation to identify a poached bull elk.

But the photographic approach isn't the only trick park wardens have up their sleeves. An innovative marking program will also be used on sheep. Tranquilized trophy-class bighorn rams will be painlessly branded on the back of their horns. This small brand will identify each marked sheep with a "J" for Jasper and an ID number. A resourceful hunter, believing he can remove the brand, will find that the wardens have also taken a silicone impression of both it and the surrounding horn. The impression gives enough information about the annual growth rings and natural markings to match it with the set of horns from which it was taken.

Hidden markings on the animal's body will back up the horn branding and be used for forensic investigations to conclusively identify a particular individual. This will enable the prosecutors to match a poached body with a head even if they are not found together.

While the sheep are tranquilized, blood samples will be taken to be used in DNA research. Like a fingerprint, the hereditary material of each individual is unique and can be exactly matched with the DNA of a single cell from any tissue; but the DNA supplies even more information than a fingerprint does. Similarities in the chromosomes of individuals can identify them as members of the same herd, or as inhabiting a particular area of the park. As wardens are able to gather more information about the characteristics and habits of the park animals, they will be better armed to prove suspicions of poaching.

(Reprinted from Nature Alert, October 1991).

Evening Grosbeak. (Photo: Jim R. Salt)

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Symposium on Recreational Trails In Alberta - Oct. 5, 1991 at Mount Royal College, Calgary

Don Stiles

The symposium was sponsored by the Calgary Area Outdoor Council and the Alberta Recreation and Parks Association, with acknowledgement to the Recreation, Parks and Wildlife Foundation which covered part of the costs 134 registrants from across the province attended.

The Calgary Area Outdoor Council (CAOC) is an umbrella group of outdoor recreation groups in Calgary. The Alberta Recreation and Parks Association consists primarily of workers in the Alberta Parks and Recreation field. Most of the facilitators of the conference were from this group.

The keynote speaker, Doug Robertson, a member of Ontario's Bruce Trail Association and the National Trail Association, gave an address on the situation with respect to trails across Canada. Most areas of Canada are farther ahead on organization than the prairie provinces. Trails are considered part of the landscape in Britain and Europe.

In the morning, registrants were divided into five groups at random, and asked to brainstorm purposes and goals for, and barriers to, a trail system in Alberta. Some participants suggested that barriers were really opportunities. We were asked to divide these purposes, goals and barriers into local, regional, and provincial, although there was a lot of overlap.

In the afternoon, registrants were asked to join a group according to what area of the province they lived in or where they did their recreation. (I went to the City of Calgary group facilitated by Judy Breeze of Calgary Parks and Recreation.) Current trail systems were listed, and partners who had a stake in these trails were identified. Recommendations were requested.

Finally, the various groups got together and asked "Where do we go from here?". A meeting, chaired by John Simonot, Chairman of the Calgary Parks and Recreation Board developed some motions for the future:

1. That this body nominate a steering committee to form a Provincial Organization to carry out the goals identified by the symposium.
2. That the initial mandate include at least:
    a) information flow to the symposium attendees.
    b) development of a proposal for a structure (bylaws, etc.) for a provincial organization.
    c) polling of partners on their desire to participate in regional councils and/or provincial organizations.
3. That this body request the province to hold abandoned railroad lines to be kept as greenways for non-exclusive public use, and that the steering committee solicit support for this lobby effort.
4. That the existing organizing committee, plus volunteers who offered to help, be deemed the steering committee, and that they re-convene a meeting by March 31, 1992.

For further information about a provincial network or Calgary Area recreation trails, or to help out, contact Outdoor Council, 1111 Memorial Drive, Calgary, AB T2N 3E4; Tel. 270-2262.

Author's Address:
20 Lake Wapta Rise, S.E., Calgary, AB T2J 2M9.

Cypress Hills Forest Management Plan Field Trip

Ivan Shukster

On Sunday morning September 29th as part of the F.A.N. director's meeting weekend, the Cypress Hills Provincial Park personnel conducted a presentation and field trip on the logging of the Cypress Hills. A two-hour presentation was followed by a 1 1/2-hour tour.

In 1987 a five-year pilot project of commercial logging was initiated in Cypress Hills Provincial Park. A review of this project will be conducted in 1992. The Grasslands Naturalists have retained a consultant, Everett Peterson of Western Ecological Services Ltd., to study the effects of logging and to examine other alternatives to clearcut logging in achieving the goals of the Cypress Hills Management Plan. The Western Ecological Services report will be released prior to the park's review.

The park presenters were Keith Bocking, interpreter and Tom Trott, forestry officer. F.A.N. directors, their families and other interested parties enjoyed the shelter of the excellent facilities of the main group camp while listening to the two park representatives. Although not representative of the weekend weather, that morning was cold and windy, so the shelter was appreciated.

Logging in the Cypress Hills is not viable on a strictly commercial venture. The rationale behind logging taking place is as a management tool. There are other reasons for removing trees from the forest than for lumber or pulp and paper. The removal of trees can be a management tool for the control of insects and disease, fire suppression, safety, forest diversity and for wildlife management. The clearcut blocks are very small and located in such a manner that it is not possible to view any two cutblocks from a single location. With the topography in mind, the cut blocks are designed to appear as natural as possible.

The forest communities of the Cypress Hills have evolved with fire. Fire suppression has been one of the management tools implemented. The last major fires in the park occurred in 1919 and 1934. The park personnel are concerned that the fire suppression practised in the park has or will result in a lack of age diversity in the forests.

After the presentation the field trip commenced. A convoy of cars and trucks went to three sites where logging had occurred. Clearcut blocks never appear pretty, but then the same can be said of forests that have recently been burned. In each of the cutblocks, Tom explained the logging methods and tree age and the methodology that was or will be employed in revegetation. With the pilot project being only in its fifth year there would be no examples of a second growth forest. The first site was one which had been logged the previous winter. The second stop on our tour showed what I thought was good regeneration. Young evergreens were growing in the ground and on stumps and deadfall. We examined these young trees and studied a soil pit that had been dug at the edge of the clearcut. The trees surrounding the clearcut presented the field trip participants with an example of the forest that existed prior to the logging operation.

I am not a forester nor is my knowledge on forest ecology adequate for formulating a conclusion on the merits of logging the Cypress Hills. Tom Trott and Keith Bocking gave an excellent, informative, and entertaining presentation on parks rationale behind commercial logging in the Cypress Hills. The Grasslands Naturalists' commissioned report by Western Ecological Services Ltd. may or may not support alternatives to the use of logging in achieving the goals of the Alberta Parks Service. I would like to stress that the working relationship between the Park's personnel and the Grasslands Naturalists and their consultants is very good. Both parties are seeking the best management technique to obtain a mixture of forest types and age diversity without threatening existing facilities. It was very apparent from the presentation and field trip that Tom and Keith have a true love and appreciation of the Cypress Hills.

I was fully appreciative of the time and effort that these two individuals made in presenting the Cypress Hills Forest Management Plan and in seeing first hand the results of the logging during the pilot project.

Author's Address:
839 - 6th Street, S.E., Redcliff, Alberta T0J 2P0.

Cypress Hills. (Photo: Jim Robertson)

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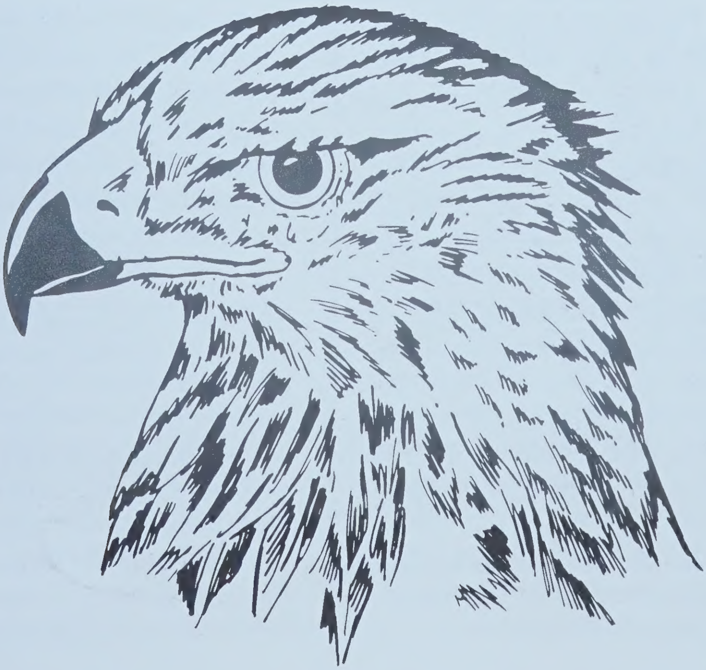


Club News

Dynamic Duo

The 1991 recipients of the Douglas H. Pimlott Award are Joy and Cam Finlay of Edmonton, Alberta. The CNF's top award is named in honour of the late Dr. Pimlott, a founding director and former president of the Canadian Nature Federation. In recognition of their outstanding lifetime achievements in the area of wildlife conservation, the Finlays received a beautiful muskox sculpture by celebrated artist Jozef Reibesteijn, and a lifetime membership in the CNF.

Joy and Cam Finlay are pioneers in environmental education. Cam was one of Canada's first park naturalists and was a founding director of Edmonton's John Janzen Nature Centre. Joy, a teacher, has played a leadership role as a naturalist with the North American Association for Environmental Education, and the American Nature Study Society. She served on the Canadian Nature Federation's board of directors from 1984 to 1990, and was CNF vice-president for Alberta, B.C. and the Yukon from 1985 to 1990.

The Finlays were the prime motivators for Wildlife '87, a national celebration of the centennial of wildlife conservation efforts in Canada. Both played an integral role in its development and implementation -- Joy as chair of the National Wildlife '87 Steering Committee and Cam as president of the Alberta Wildlife Conservation Centennial Association. The centennial celebration led to a number of wildlife conservation initiatives, and culminated in the participation of Prince Philip in ceremonies at the first wildlife sanctuary in North America at Last Mountain Lake, Saskatchewan.

Cam and Joy Finlay receive the Pimlott Award presented by Jacques Prescott, President of C.N.F.

(Photo: Myrna Pearman)

The Finlays are recipients of Alberta's Order of the Bighorn, and Joy was recently named to the Order of Canada.

The CNF extends its congratulations to Joy and Cam Finlay, worthy recipients of its most prestigious honour. They join an impressive list of previous winners of the Douglas H. Pimlott Award.

1990 - Lorne Scott
1989 - William Fuller
1988 - C. Stuart and Mary Houston
1987 - Thom Henley & John Broadhead
1986 - Lyn MacMillan
1985 - George F. Ledingham
1984 - V.C. (Bert) Brink
1983 - no award presented
1982 - Vladimir J. Krajina
1981 - William W.H. Gunn
1980 - J. Dewey Soper
1979 - Jennifer Shay

(Reprinted from CNF Almanac Vol. 5, no.4.)

Announcements

The Third Prairie Conservation and Endangered Species Workshop will be held February 14-16, 1992 in Brandon, Manitoba. Built around the theme of "Integrating Land Use, People and Endangered Species", the workshop will be of interest to naturalists, farmers, academics and agricultural/resource professionals alike.

Workshops, poster sessions and displays will include topics such as the Prairie Conservation Strategy, Rural Economics and Prairie Species, Endangered Species and other agriculture and wildlife related topics. For further information contact the Rural Development Institute at Brandon University in Brandon, Manitoba R7A 6A9 or phone (204) 727-9734.

Alberta Bird Atlas

The production of the Atlas of Breeding Birds of Alberta is still on target for a publication date of late 1992. The last of the data cards were received in November 1991 and were integrated into the data base. There are approximately 105,000 records which will be used in the final preparation of distribution maps.

Several different pieces of the book are now in production. The cover of the Atlas has been finalized and the selection of photos for the text is well advanced. The editorial staff is very busy producing draft copies of the text and the computers are expertly generating beautiful colour maps to clearly show the results of the five years of atlassing. The challenge is to bring them all together in the form of a book.

The headquarters for the Project have now shifted from the Provincial Museum to the Percy Page Center. We are right next door to the Federation of Alberta Naturalists and can be contacted at 453-8629.

This spring there will be a marketing program initiated which will provide a discount for those people who order early. Details will be provided in the next issue of the Alberta Naturalist.

Glen Semenchuk, Editor/Writer

12% by 2000

How to save 12% of the lands and waters of Canada by the year 2000. Workshops will be held January 25, 1992 at Percy Page Centre, 11759 Groat Road, Edmonton.

These workshops will take the form of short presentations, questions and answer sessions on areas that have been saved for habitat, and how we may go about preserving additional areas. The panel of experts will outline ways and means by which endangered spaces may be protected by individuals or small groups.

12% by 2000, launched by the World Wildlife Fund in 1989, the Endangered Spaces campaign is working to ensure that each of Canada's approximately 350 natural regions is represented by parks or other protected areas by the year 2000. When completed, this will mean that at least 12% of Canada's lands and waters will be protected as true wilderness, free from resource extraction.

Endangered means its not too late...

Nature Notes From Here and There

Jim Robertson

One of the nice things about my job as head of interpretation for Waskasoo Park in Red Deer is that I get to see many magazines and articles with fascinating tidbits of nature trivia. The down side of this, though, is that as an interpreter I sometimes have to extract the juicy bits from dry, dusty journals and explain them in common English.

Yesterday, the Kerry Wood Nature Centre received its copy of the Canadian Field Naturalist, a good example of the "dry and dusty" school of writing. It features scientific papers written in the third person, passive style -- you know, things like "It has been hypothesized that warm estuaries provide a less energetically demanding environment at a time when their fat reserves are mobilized for growth...."

Amid the chaff, though, there is some wheat.

Bank Swallows dig their own nest holes in sandy cliffs and riverbanks. Nobody ever figured out, though, why they select one nest site over another until Roy John of Ottawa worked on it. Bank swallows prefer to nest near the tops of high banks, cliffs with at least a 3-metre vertical face, for security. They also need a bank with good quality construction sand, not clay or chalk, with few organics mixed in. The sand must be firm, though, so it doesn't slump and collapse on or expose the nest. We have sites like this in several spots along the Red Deer River, right here in the city.

Another article, by three researchers in Alaska, found that Canada lynx can and do prey on larger mammals like red fox, caribou, and Dall sheep, as well as their usual victim, the snowshoe hare. When hare numbers are low, they tend to switch to the large animals, especially the fox. This is interesting because there are probably a few lynx in this area, and in recent years, fox numbers have been rising. Hare populations are dropping, so we may lose a few fox to lynx in the outlying districts. There shouldn't be much change in our local Dall sheep and caribou populations, however.

The drought which we endured for most of the '80s had a serious effect on nesting for many types of waterfowl. In Saskatchewan, James Sutherland discovered that the dry years reduced nesting habitat so much that the number of pairs of American coots decreased to about 10% of those recorded in the same areas in wetter years. In 1981, over half the young were killed by predators when their ponds dried up before they could fledge. The rest of the study proved that the survival of coots depended on the depth of the water and the height of the vegetation that grew out of and around the ponds. Places like Slack's Slough on the south edge of Red Deer are great for coots and other waterfowl, but far more of these places are needed to allow the wild populations to survive the droughts that come every few years.

Snowshoe hares moult in the spring and fall. Their white winter fur alternates with the brown coat of summer. Because of this, they are well camouflaged for much of the year. Sometimes, though, they are right out of sync with the seasons. Brown bunnies bouncing on snowbanks are easy to see; white ones waiting for winter to arrive are easy victims, too. John Litvaitis of New Hampshire found that while the evidence isn't conclusive, hares with fur "the wrong colour" tended to seek out areas with more cover, perhaps to better remain hidden. An older study noted that white hares moved from snow patch to snow patch in the spring, travelling quickly over brown ground.

I know several old-timers in the area

who absolutely despise any birds that attack the "nice" mountain bluebird. The English sparrow, a non-native species, is right up their on their hate list and is often trapped and killed. Some people have even gone to the (illegal) step of killing native hawks and falcons such as the merlin, because they sometimes attack bluebirds, too. It struck me as ironic, though, when reading the article in the Canadian Field Naturalist that English sparrows make up 70% of the breeding season diet of merlins, and that the size of sparrow flocks is much smaller when close to a merlin's nest. The people that were killing merlins were making more work for themselves -- they then had to go out and destroy even more sparrows!

Finally, most people around Red Deer know that gulls are what are called "opportunistic feeders"; that is, they'll eat anything they can, whenever they get a chance. Around Red Deer, our most common gull is the ring-bill -- a large white bird with a black ring-like mark around the end of its beak. As the seasons progress, gulls will eat whatever is abundant: spiders, grasshoppers, worms, garbage, the eggs of other birds... In Sudbury, Ontario, they had a major infestation of forest tent caterpillars a few years ago, just as northern Alberta has endured recently. When tent caterpillars have finished eating all the leaves off of a tree, they pupate in cocoons in mid to late June. The cocoons are in a curled-up leaf, often near the end of a light twig. Normally, a 1.5 kg gull couldn't perch on a twig to eat the cocoons, but on this day, a strong wind allowed the gulls to hover and pick the cocoons out of the leaves. Gulls definitely will seize whatever opportunity they can to get an easy meal!

Author's Address:
R.R.#2, Lacombe, Alberta T0C 1S0

And Now for Something Completely Different!

Dave Ealey

O.K. You've had a great summer, taken a last wistful look at the results from your atlas square and its birds, and have settled in for a leisurely winter. Except for the momentary excitement of that old standby, the Christmas Bird Count, it's all over until next spring, when you can go back to watching birds like you used to -- as you walk the dog or go hiking or while on the opportunistic field trip to a park -- just to see what's around.

Is that all there is? Well, I'm glad you've asked that question. Now that you are a seasoned and skilled bird surveyor, I'm going to tell you about something just a little bit exciting -- something you can sink your teeth into. It's not that it's secret, but until a birder develops him/her self to the point where this kind of birding seems achievable, it seems like too big a hurdle. What am I going on about? The Breeding Bird Survey, of course!

Most of you have probably vaguely heard about the Breeding Bird Survey, or the BBS as participants affectionately refer to this annual rite of birderhood. A good many of the regular Alberta BBS surveyors included their survey routes within atlas squares and contributed their data to the Breeding Bird Atlas database. And unlike other states/provinces where Atlases have been run, the BBS has expanded in Alberta all throughout the period of the atlas fieldwork. A minimum of 46 surveys were run in Alberta in 1991. This compares with five routes in 1968, the first year of the BBS in Alberta; an average of 27 routes per year from 1968 to 1987; and a previous high of 39 routes in 1981 (Park, J. 1988. Alberta Naturalist 18(2):53-58).

So it's obvious there is a lot of interest in the BBS already, but we have a very large province, many parts of which are uncovered or poorly covered at present. With the talent I know has been developed during the atlas field seasons, I am certain that some of the glaring holes in this regular monitoring program can be filled. No less important, the enthusiasm for organized birding activities that has been encouraged by the atlas cannot be allowed to flicker out, as a result of the vacuum that might occur after the atlas is published.

Just what is involved in running a BBS route? Essentially the survey consists of a structured, annual, roadside count of all detectable birds on a single morning, in the peak of breeding period. It is beneficial if you can commit to doing the survey for a few years, since data are most reliable with a regular observer. Of course, this is not a problem for most enthusiasts. The BBS is something that participants look forward to and plan for every year; it is intriguing to be able to reflect on the trends noticeable in **your** part of the birding world.

The survey is conducted by car, along a designated roadside route which allows a meaningful sample to be collected. This sample of bird records is used to represent the one degree block of latitude/longitude within which the route falls. Fifty stops are located along the 40 km route, with each stop separated by 0.8 km (half mile). Exactly three minutes of surveying is completed at each stop, thus the entire survey is expected to take no more than four and a half hours. All *detectable birds*, meaning that all of the individual birds whose song or call note can be detected, and all birds seen within 0.4 km (quarter mile) are recorded for the respective survey stops. In Alberta, the peak breeding period is sometime during June, or, in far northern Alberta, during the first part of July. The farther south one's route, the earlier the survey. It is preferable if routes are run at the same time every year.

Did I mention that the survey starts in early morning? Very early morning? Very, very early morning? Well I am afraid so, but once you get used to the idea, you appreciate the advantage of getting up to count birds when they are most vocal, starting at one-half hour before official sunrise. Depending on how far north your route is, the starting time can be from around 04:45 am. to 04:00 am. This means that your survey is over by 08:00 am to 09:30 am.

The BBS is a very fast-paced and rigorous survey, which is made easier if you have an assistant along. However, once you are familiar with the techniques and route, it is quite feasible to run it alone -- though less enjoyable. There is something about sharing the challenge of recording 15, 20 or more species at a single stop, within a three-minute time limit, and doing it carefully and accurately.

There is immense satisfaction in knowing that you are contributing to our knowledge of bird populations and their distribution. This is the end result of running a BBS route, something which relatively few birders undertake, but which many of our Alberta Bird atlassers are capable of tackling.

Interested?

If you want more information, or would like to take part in a survey, contact: The Provincial BBS Coordinator, Jack Park, 10236 - 70 Street, Edmonton, Alberta T67A 2T4. (Phone 469-8127).

Author's Address:
3903 - 105 Street, Edmonton, Alberta T6J 2K7.

(Reprinted from Alberta Bird Atlas Newsletter, Vol. 5, No. 3)

The Pileated Woodpecker at Bindloss and Buffalo

Michael D. O'Shea

Over a 21-month period (since January of 1990), a single Pileated Woodpecker has been ovserved at four locations within the vicinity of Bindloss and Buffalo, Alberta. Sightings have occurred during all 4 seasons.

On January 14, 1990, a Pileated Woodpecker was observed and photographed by Donna Minor at her ranch in the Red Deer River valley 12 miles upstream of Bindloss. It excavated a number of deep holes in the trunks of a stand of Manitoba Maple trees. It stayed around the yard for the day but was not seen again.

This woodpecker may have moved further upstream. I received a report of a large, unidentified woodpecker about 30 km away a month or so later.

Almost exactly one year later (January 12, 1991), I got a brief look at a Pileated Woodpecker in the same river valley immediately north of Bindloss. It was flying rapidly but I was able to follow it with my binoculars. It was very large and clearly showed the large red crest. Having seen this species of woodpecker before, I recognized it immediately.

Three months later (April 18, 1991), a Pileated Woodpecker was seen and photographed by Creston Andersen (a grade 5 student) at his parents' farm approximately 10 km south of the town. This siting is interesting because it is at least 14 km from either river and is surrounded by treeless prairie and farmland.

This is Creston's account in his own words. "I observed a Pileated Woodpecker in our yard. As soon as I saw this bird, I knew right away it was a Pileated Woodpecker because of the big crest on its head. Then I ran and got my camera and ran outside to take pictures of him. I took three pictures and he was as tame as can be. Then my frisky cat, Donna, climbed up the tree after the woodpecker. Right away he flew away. When he was flying, he looked exactly like a crow. He landed on a nearby powerpole and started to peck away. Then my sister came with me and I took two more pictures. The woodpecker flew south and never did stop flying."

Sometime in late June or early July of 1991 a Pileated Woodpecker started visiting a farmyard adjacent to the Red Deer River 3.5 km north of town of Buffalo. The owners of the farm, Kelly and Bonny Ross, report that it visited their yard weekly until it disappeared sometime in late October. I saw the woodpecker at the farm and the adjacent woodlands on 2 occasions (September 22 and 23, 1991).

Bindloss is located approximately 100 km north of Medicine Hat and 20 km west of the Alberta/Saskatchewan border. The region is made up exclusively of arid grassland except for the Red Deer and South Saskatchewan rivers which pass north and south of the town.

The Red Deer River, which passes just 4 km north of Bindloss, is lined with stands of cottonwoods which vary considerably in density as one moves along the riverbank. Large tracts of prairie, sage flats and scrub cover the wide valley often isolating the stands of trees.

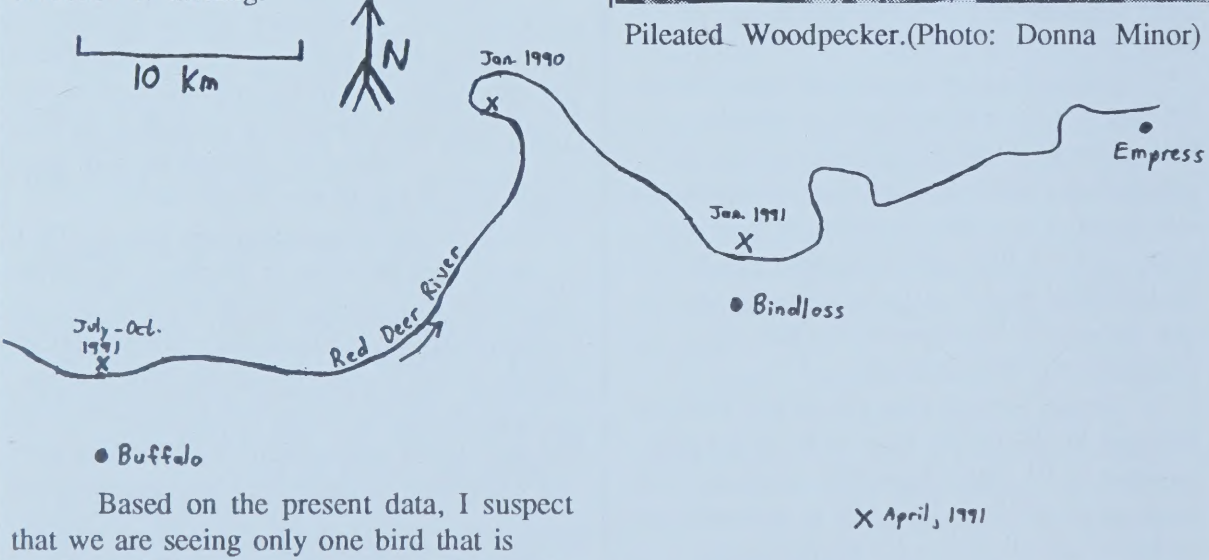
The South Saskatchewan River is located 17 km southeast of Bindloss. It is a narrower valley composed mainly of steep cliffs and badlands. In our area at least, cottonwood stands are small and isolated.
The town of Buffalo is situated 30 km west (and upstream) of Bindloss. The Red Deer River is 3.5 km north of the town. The river valley is more heavily treed than at Bindloss, with stands of very large cottonwoods.

According to the literature (Salt & Salt, 1976) (Godfrey, 1966), the Pileated Woodpecker occurs in the northern half of the province extending down along the mountains and foothills. It prefers mature forests of various types but prefers poplars.

Salt & Salt state that the Pileated Woodpecker has been found nesting as far east as Munson (near Drumheller) and could wander east along the Red Deer River valley during the winter season. Godfrey mentions that it may forage close to buildings and towns during winter.

It is difficult to be sure whether we are seeing one bird or many birds. The sightings occur over 50 km of river and there has been no evidence of a second bird (see map). The late summer occurrence at Buffalo is suggestive of possible breeding but with the absence of a second bird, evidence is lacking.

Pileated Woodpecker.(Photo: Donna Minor)



Based on the present data, I suspect that we are seeing only one bird that is ranging widely about our area. This woodpecker probably wandered eastward along the Red Deer River and has found our area, with its large, aged cottonwoods, to its liking. One might speculate whether Pileated Woodpeckers might find our cottonwoods attractive enough to stay and nest. This will make an interesting further study.

Literature Cited

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Godfrey, W.E. 1966. "The Birds of Canada". National Museums of Canada, Ottawa.

Author's Address:
General Deliver, Bindloss, Alberta T0J 0H0.

Viewpoints on Cooperative Management for Caribou

A Paper Presented to West Central Alberta Caribou Technical Committee September 20th, 1991, Grande Cache.

by Beth MacCallum on behalf of the Federation of Alberta Naturalists.

As we all know caribou in Alberta are in trouble, as are caribou across their southern range. Whether the cause is some large environmental factor such as climate warming doesn't overshadow the mandate to maintain Alberta's caribou. This mandate is clearly stated in the report "Status of Alberta's Wildlife" passed by cabinet in 1984. It is clear that Canadians want not only wildlife but abundant wildlife - many reports are available to show this. This is likely not a realistic goal for woodland caribou but certainly the goal of maintaining caribou seems sound. It seems to me we don't know enough to dismiss the caribou problem as something out of our control anyway.

I think there is no question the public is interested in the environment in general and as Canadians, wildlife in particular. Whether we want to admit it or not wildlife is a very ingrained part of our culture. As a member of the public I don't want to hear excuses from either government or industry in 10 or 15 years if there are no caribou around. I want to know that the best effort was made to understand what was causing the caribou's decline.

The timing is right for good basic on-the-ground inventory. We need information to effectively design management plans to carry on industrial activity while ensuring that caribou will be around during and after development. I heard some astounding costs last night - one company spending $840, 000.00 to comply with one winter's operational restrictions. It doesn't take very much math to figure out that even if industry spends 1/4 of that money on learning more about caribou in specific localities that big savings can be accrued in future years.

Much as I would like to see the government spend my tax dollar carrying out basic inventory programs it seems that this just won't happen very easily and certainly not quickly enough for caribou. I think the cost for advancing knowledge of caribou in specific sites in the short term will fall to the industry that is using the habitat. The industry may benefit financially in the long term by understanding how the caribou uses its habitat.

In short, the public's interest in the environment and the welfare of wildlife in particular isn't going to go away. The attention of the public right now is on the forest industry, deservedly so, as it affects such huge tracts of land. We know we must learn more about caribou and that we must spend money to identify the opportunities that may allow industry to operate while allowing caribou to persist.

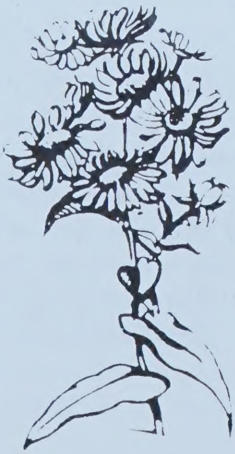
I would like to see a continuing of on-going caribou studies - both inside Jasper National Park - which could serve as a beautiful control, and outside. In addition, I would like to see on-the-ground inventory and monitoring. $200,000.00 from industry could go along way to fund a technician for 5 years and one or two Master's students.

Author's Address:
110 Seabolt Drive, Hinton, Alberta T7V 1K2.

An Aster-Climbing Least Chipmunk

J. Derek Johnson

After a ''stimulating'' day of measuring tree heights and diameters at our wetland drainage site southeast of Valleyview, our technician and I would, on occasion, unwind with a round of golf at the local course. On one of our visits in mid-September, as we approached the second tee, we observed what I thought was rather amusing feeding behavior on the part of a Least Chipmunk. Since there was no one behind us on the course when we first spotted the chipmunk, we decided to spend a minute or two watching it eat, as it seemed relatively unconcerned by our presence. What followed surprised me. When the chipmunk finished munching on the seed head it had between its paws, it scurried over to a plant of Lindley's Aster (Aster ciliolatus) next to a relatively large Balsam Poplar tree. After a brief pause it proceeded to climb up the aster, just like a Red Squirrel would climb up a spruce tree. As the chipmunk got close to the top of the plant its weight was enough to bend the plant over almost to the ground, but the chipmunk was agile enough to maintain its balance while biting off a flower head, after which it dropped to the ground with its prize. It was obviously after the seeds in the head, but it was not averse to eating the flowers in the process. The chipmunk repeated this process a second time before we disturbed it and it retreated into the bush. The chipmunk seemed quite adept at scaling such a small plant, but I would have thought that it would have been easier for it to gnaw the plant off at its base first to make the collection of the seed heads easier. Is this type of climbing behavior typical for a chipmunk, or did we witness something unusual?



Author's Address:
Northern Forestry Centre, 5320 - 122 Street,
Edmonton, Alberta T6H 3S5.

Theme for National Wildlife Week 1992

Keep Canada Ever Green for Wildlife

This theme is a continuation of the Habitat 2000 program introduced by the Canadian Wildlife Federation three years ago. Habitat 2000 is an action oriented program that will span 10 years. The program emphasizes an active hands-on approach so that people can see that they can make a real contribution toward conserving Canada's wildlife resources.

Without green plants, life as we know it would not exist. Every day the sun drenches our life-filled planet with energy. Some energy bounces off the air enveloping earth and is lost in space. Some heats our land and stirs up air masses into what we call weather. And some fall onto one of life's miracle-workers, green plants.

Through a complex process not yet fully understood, green plants catch the sun's energy and use it to manufacture their food. The word for this process is photosynthesis.

The process begins with a drop of water that seeps into the soil, gathering up carbon, hydrogen, oxygen and nitrogen -- the building blocks of life. The plant's plumbing system transfers these nutients into its leaves which are receiving carbon dioxide from the air.

Now the green plant's molecules of chlorophyll in its leaves perform the magic of photosynthesis. From carbon dioxide from the air and from nutrients from the soil, the plant manufactures carbodydrates -- sugar -- which is its food. The waste product given off by this process is oxygen, a vital element for all living things. You could think of green plants as the lungs of the world.

Only about one per cent of the sun's energy that falls upon a plant is converted into plant matter. But amzingly the entire animal kingdom depends upon that one per cent -- including the entire human race.

History of the Edmonton National Wildlife Week Festival

The Canadian Wildlife Service (CWA), Western & Northern Region, discussed their need for a more visible involvement in National Wildlife Week in the fall of 1984. In cooperation with the Provincial Museum of Alberta as host venue, they wrote to all Edmonton-area government and non-government groups involved in wildlife conservation and invited them to take part in a National Wildlife Week Festival in Edmonton. The first Festival was held at the Provincial Museum in April of 1985 and annual events have continued since then. The Canadian Wildlife Service and the Provincial Museum of Alberta have co-chaired the event, at the request of all participants, since its inception.

A set of guidelines for the Festival have evolved over the years and were finally set down in writing in the fall of 1990.

History of National Wildlife Week

National Wildlife Week was declared in 1947 by a unanimous vote in an Act of Partliament - The National Wildlife Week Act. The dates set were established to include the week which contains April 10th of any given year - the birthdate of Jack Miner, founder of the Jack Miner Sanctuary in the Windsor area of Ontario. The week is set aside to highlight public awareness and education of the wildlife resources and conservation, and initiate activities to achieve these goals.

At the request of the National Wildlife Directors' Committee (a committee comprised of Directors of Wildlife from all provincial and territorial governments plus Environment Canada), the Canadian Wildlife Federation was requested to coordinate national planning of National Wildlife Week and report each year to the Federal/Provincial Wildlife Conference.

action & awareness

Status of Migratory Game Birds in Canada

With the 1991 game bird hunting season now over, game bird hunters from across the Prairies will have finished watching the skies for migrating ducks and geese. Observant hunters may have noticed that in some areas, the various geese populations outnumbered the duck populations, and the duck population continued to be low, while the goose population has grown.

The major factor which continues to affect the growth of waterfowl populations is habitat deterioration. The majority of geese fly into the Northwest Territories where they breed and raise their young. Ducks, on the other hand, primarily nest in the Prairies. Due to some agricultural practices, the prairie wetland nesting habitat is diminishing. Habitat loss contributes to reduced hatching success due to increased predator activity. Other factors contributing to low duck populations include mortality associated with hunting and disease.

To ensure that current duck populations are able to make the most of current habitat conditions, hunting mortality must be managed to prevent over-harvesting of breeding populations. Each year, the Canadian Wildlife Service of Environment Canada establishes Canadian hunting regulations. These regulations are based on migratory game bird status reports which are produced annually by the Canadian Wildlife Service and the U.S. Fish & Wildlife Service.

The Canadian hunting regulations are based on long-term trends and analyses of historical population and harvest information from the December 1990 and April 1991 status reports, as well as the annual May breeding population surveys in the southern prairies. Based on this information, it became apparent that restrictive regulations needed to be maintained for the 1991 western Canadian duck hunting season.

The May 1991 duck surveys show that total ducks decreased by 24 per cent, two per cent and nine per cent, in southern Manitoba, southern Saskatchewan and southern Alberta respectively. An analysis of the long term population trend shows serious long term declines in southern prairie duck populations. The total duck population is significantly below the long-term average, and is provincially broken down as follows: 38 per cent below the mean for southern Manitoba; 44 per cent below the mean for southern Saskatchewan, and; 35 per cent below the mean for southern Alberta.

Continentally, the duck specie that has fared the worst in recent years is the northern pintail. Pintail populations declined by 20 per cent in 1991 and are 62 per cent below their long term average.

However, there are signs of hope. Total number of ducks has increased by six per cent (remaining 19 per cent below the long term average), while the mallard population remained stable (at 27 per cent below the long term average).

In order to help restore the various duck populations to their average, all three prairie provinces will maintain the restrictive regulations currently in place.

This repopulation strategy is one of many included in the Prairie Habitat Joint Venture (PHJV) project under the North American Waterfowl Management Plan.* The objective of the PHJV is to restore waterfowl populations in prairie Canada to 1970s levels by improving and protecting waterfowl habitat.

With the cooperation of landowners in Manitoba, Saskatchewan and Alberta, a number of habitat conservation initiatives have been undertaken. These include: seeding of nesting cover and use of nesting structures; conversion of marginal agricultural land to perennial cover; delayed haying; green manuring and promotion of conservation farming methods; crop damage prevention; protection of key wetlands; and, input to national and regional policies such as those for drainage and farm taxation.

With the assistance of prairie landowners, government agencies and other organizations, former duck populations can be restored. However, more than restoring duck populations, the North American Waterfowl Management Plan will improve habitat for other wildlife, increase the sustainability of agricultural lands and continue to provide outdoor oriented recreation and tourism. This is all possible by taking a more effective approach through land use. For more information, contact: Bruce Turner, Environment Canada, Edmonton (403) 468-8909.

* The North American Waterfowl Management Plan was signed by the Governments of Canada and the U.S.A. in 1986. The following objectives for prairie Canada are to be achieved before the year 2000:

1. To implement a $1 billion program for improved land management in critical prairie waterfowl areas.
2. To identify and protect over 1.4 million hectares (3.6 million acres) of the best waterfowl habitat in Alberta, Saskatchewan and Manitoba.
3. Maintain duck populations at a level of 17.3 million in years of normal weather conditions - including 4.8 million Mallard and 3.3 million Pintail.

Mallard duck. (Photo: Jim R. Salt)

Book Reviews

Fish Creek Provincial Park - A Guide to Canada's Largest Urban Park

Anna Robertson, Rocky Mountain Books
1991, 128 pp, $10.95 paperback.

This popular guide to Fish Creek Provincial Park was commissioned by the Fish Creek Park Society which hold the copyright. They are dedicated to preserving, protecting and enhancing significant cultural and natural history areas of the park. The text was written under contract by Anna Robertson (yes, the same person who edits this bulletin).

The main body of the book is in three sections dealing with:

a) Natural history
b) Cultural history
c) Site specific information

The natural history section begins with a geology section explaining how the glaciers shaped the nearby region. It follows with highlights on natural history features of the park, most often dealing with those the new naturalist may notice. Some subjects treated are: oxbow lakes, balsam poplar, white spruce, beaver, mule and white-tailed deer, large raptors, meadowlark, coyote and richardson's ground squirrel. There are also sections on the various small fishes and the native grasses seen in the park.

The cultural history section deals first with the native Indian culture, describing buffalo pounds and buffalo jumps. It follows with write-ups on the early historical figures who were involved with the park. These include John Glenn, William Roper Hull, Pat Burns and the Shaw family. This section gives a good feel for the life of park residents in the late 1800s and early 1900s.

The above sections can be read as general interest in natural and cultural history. The main strength of the book as a guide-book is in the site-specific information section. This deals with eleven parts of the park ranging from Shannon Terrace in the west with its environmental centre for schools, to Sikome Lake, a man-made lake popular for swimming and skating, to Mallard Point in the east, a riverine forest area along the Bow River. Each section has tables with the following titles: access, facilities, environment, common plants, common animals and birds, and special features. A map accompanies each giving access roads, buildings, and environmental features (spruce or poplar trees and grassland). The text expands on the special and environmental features. Boxes are added with ''Just For the Fun of It!'' features such as cycling, photography, borrow an activity pack from the visitor's centre, or just listen to the sounds of birds around you.

All the main sections are enhanced by drawings by Gary Ross of species or scenery and by black and white photographs of scenery or historical features of the park.

The foreword is by Grant MacEwan who gives some additional insights into the early history of Fish Creek. An introduction tells how the provincial park came to be as well as giving some park regulations.

Finally, at the end of the book, there are ''For More Information'' and ''Further Reading'' pages, followed by checklists of birds, animals, and plants. These were taken from the Calgary Field Naturalist Society's book ''Calgary's Natural Areas 1980" but re-ordered into categories to help the layman (eg. water birds, perching birds, tree-clinging birds). In the case of plants listing is by families, with latin names dropped.

Only about two typographic errors were noted in the main text, but several more were found in transcribing the check lists. In case you miss it, ''P - permanent resident'' in the birds section should read ''R - permanent resident'' to fit the listings which follow.

This book follows two other guides to natural areas in Calgary: Nose Hill - A popular guide 1988, and Inglewood Bird Sanctuary - A place for all seasons 1990. All are useful additions to the naturalist's book shelf.

Don Stiles

A Bibliography of Alberta Ornithology (Second Edition)

David M. Ealey and Martin K. McNicholl, 1991. Provincial Museum of Alberta Natural History Occasional Paper No. 16. Edmonton, Alberta. 751 pp. $26.70.

This is another in the occasional paper series out of the Provincial Museum of Alberta. This telephone book sized work is an update of the 1981 compilation of the same title published as Occasional Paper No. 3.

The first 3 pages are an introduction explaining how the bibliography was developed and provides a brief user's guide. A map of Alberta showing the 1:250,000 National Topographic map sheet grid is presented on page 4. This grid is referenced in many of the citations.

Pages 15-23 present the exhaustive list of sources of references while page 24 displays literature cited. It is unlikely that many references have been missed. I do note, however, that of the three annual reports on Calgary birds published in the mid-1980s only ''The Birds of the Calgary area, 1982'' is referenced. The 1983 and 1984 compilations appear to have fallen through a crack.

Seven thousand four hundred forty-four references are listed on the next 566 pages. These references are divided into twenty categories such as behavior, disease and parasites, etc. The remaining 161 pages are taken up by the most important section of the book. Author, subject, species and geographic indices are presented.

The book is in 8.5"x 11" format, strongly bound and is printed on sturdy matte finish paper. The references and indices were computer generated, printed on a dot matrix printer and reduced. The resulting small print size is hard on the eyes but acceptable considering the logistical and space problems the authors had to face.

In the reference section each page is filled. However, the indices only extend halfway across the page resulting in significant unused space. Perhaps some technical printing constraint demanded this but two other possible layouts would have been preferable. Ideally the indices could have been presented without reduction resulting in much easier reading. Failing that, use of the full page would have saved a significant amount of paper (approximately 80 pages per book!)

All in all Ealey and McNicholl are to be respected for a thankless job well done. Many hours will be saved by future researchers requiring Alberta ornithological information.

Doug Collister

In Memoriam: Frank R. Harper (1929 - 1991)

Alan Roberts

Dr. Francis Richard (Frank) Harper had an abiding interest in biology and natural history, both as a hobby and professionally. He was born in Calgary on June 22, 1929, spent most of his life in Alberta, and took his undergraduate training and M. Sc. at the University of Alberta in Edmonton. His doctorate in Plant Pathology was obtained from Iowa State University at Ames in 1961. From May 1952 until his retirement in December 1986, he was employed by Agriculture Canada in Lethbridge at the Science Service Laboratory, which today is part of the Research Station.

Professionally, Frank spent part of his career studying diseases of peas, sugar beets, rye and barley. Also, much of his working career was spent on extension, helping farmers, home gardeners and the agribusiness community with plant disease problems. He was a founding member of the Western Committee on Plant Disease Control of the Western Forum, and editor from 1976 to 1984 of the useful compendium "Guidelines for the Control of Plant Diseases in Western Canada". He was also a director of the Canadian Phytopathology Society.

From 1969, Frank was a member of the Lethbridge Naturalist Society, whose books he audited for many of its early years. He assisted with the incorporation of that Society, and served two terms as president from 1972 to 1974. He was a member of the Federation of Alberta Naturalists and the Canadian Nature Federation. Frank joined the F.A.N. Board of Directors in 1972, served as president in 1974 and 1975, then continued on their Board until 1977.

Frank was interested in photography, and spent considerable time photographing plants, especially in the Lethbridge Nature Reserve. Frank had a good knowledge of local birds, and participated in Christmas and May bird counts with the Lethbridge Naturalist Society. He also assisted with breeding bird surveys in southern Alberta.

Frank passed away on July 9, 1991. Local naturalists will miss him greatly for his appreciable knowledge of local flora and fauna, his interest in club activities, and his always friendly presence.

Author's Address:
2129 - 18 Avenue South, Lethbridge, Alberta
T1K 1C7.

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